

OCTOBER 9, 1943

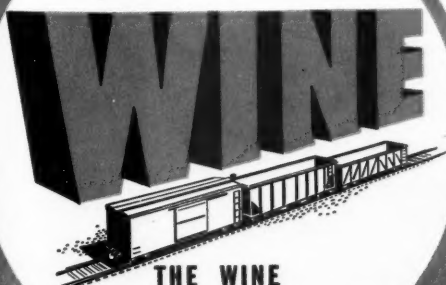
OCT 13 1943

Railway Age

Founded in 1856

**SAVE
1500 LBS. of
CRITICAL STEEL**

... ON A 16 DOOR COMPOSITE GONDOLA!



THE WINE
RAILWAY APPLIANCE CO.
TOLEDO, OHIO

WINE DOOR LOCKS

SIX TESTS* HAVE GUARDED THE QUALITY OF CHILLED CAR WHEELS ...NOW A 7TH HAS BEEN ADDED



AN INSTRUMENTAL HARDNESS TEST

6/16" below the tread, Brinell hardness cannot be less than 352.

2" below the tread, Brinell hardness cannot be greater than 200.

1 1/2" below the tread, Brinell hardness in the throat cannot be greater than 250.

To satisfactorily control the depth of chill is to ensure the *right* degree of hardness at the *right* place. Now, after 3 years' research and development, such control is possible by *instrumentally* determining chill with the Brinell Hardness Testing Machine. This test becomes the seventh requirement Chilled Car Wheels must satisfy

before Association inspectors will permit them to leave any of our foundries. Thus, Chilled Car Wheel users are assured of still another control of quality.

The development of this new test demonstrates the continued efforts of Chilled Car Wheel manufacturers to produce a better wheel through rigid control supervision.

*The six previously established control tests are:

1. Chill test block taken at least once in every ten wheels poured.
2. One complete chemical analysis block with each heat.
3. Constant pyrometer check for accurate processing temperature.
4. Drop test of finished wheel (A.A.R. Specifications).
5. Thermal test of finished wheel (A.A.R. Specifications).
6. Test for perfect rotundity.

ASSOCIATION OF MANUFACTURERS OF CHILLED CAR WHEELS

230 PARK AVENUE,
NEW YORK, N. Y.

445 N. SACRAMENTO BLVD.,
CHICAGO, ILL.



Organized to achieve:

Uniform Specifications
Uniform Inspection
Uniform Product

3412

Railway Age

With which are incorporated the Railway Review, the Railroad Gazette and the Railway Age-Gazette. Name registered U. S. Patent Office.

Vol. 115

October 9, 1943

No. 15

In This Issue

PUBLISHED EACH SATURDAY BY THE SIMMONS-BOARDMAN PUBLISHING CORPORATION, 1309 NOBLE STREET, PHILADELPHIA 23, PA., WITH EDITORIAL AND EXECUTIVE OFFICES AT 30 CHURCH STREET, NEW YORK 7, N. Y. AND 105 W. ADAMS STREET, CHICAGO 3, ILL.

WASHINGTON 4, D. C.: 1081 NATIONAL PRESS BUILDING, CLEVELAND 13: TERMINAL TOWER SEATTLE 1: 1033 HENRY BUILDING, SAN FRANCISCO 4: 300 MONTGOMERY STREET, ROOMS 805-806. LOS ANGELES 14: 530 WEST 6th STREET.

SAMUEL O. DUNN, CHAIRMAN, HENRY LEE, PRESIDENT, ROY V. WRIGHT, VICE-PRESIDENT AND SECRETARY, F. H. THOMPSON, E. T. HOWSON, F. C. KOCH, R. E. THAYER, H. A. MORRISON, J. G. LYNE, H. E. McCANDLESS, VICE-PRESIDENTS, J. T. DeMOTT, TREASURER.

SAMUEL O. DUNN, EDITOR, ROY V. WRIGHT, MANAGING EDITOR, ELMER T. HOWSON, WESTERN EDITOR, JAMES G. LYNE, ASST. TO EDITOR, C. B. PECK, ALFRED G. OEHLE, E. L. WOODWARD, J. H. DUNN, R. A. DOSTER, H. C. WILCOX, NEAL D. HOWARD, CHARLES LAYNG, GEORGE E. BOYD, WALTER J. TAFT, M. H. DICK, JOHN S. VREELAND, C. MILES BURPEE, ARTHUR J. MCGINNIS, J. L. STOVER, C. B. TAVENNER, H. E. MEASON, LIBRARIAN, EDITH C. STONE, EDITORIAL ASSISTANT, BETTY KETCHUM.

RAILWAY AGE IS A MEMBER OF ASSOCIATED BUSINESS PAPERS (A. B. P.) AND AUDIT BUREAU OF CIRCULATION (A. B. C.)

SUBSCRIPTIONS, INCLUDING 52 REGULAR WEEKLY ISSUES, AND SPECIAL DAILY EDITIONS PUBLISHED FROM TIME TO TIME IN NEW YORK OR IN PLACES OTHER THAN NEW YORK, PAYABLE IN ADVANCE AND POSTAGE FREE. UNITED STATES, U. S. POSSESSIONS AND CANADA: 1 YEAR \$6.00; 2 YEARS, \$10.00; FOREIGN COUNTRIES, NOT INCLUDING DAILY EDITIONS: 1 YEAR, \$8.00; 2 YEARS, \$14.00. SINGLE COPIES, 25 CENTS EACH. H. E. McCANDLESS, CIRCULATION MANAGER, 30 CHURCH STREET, NEW YORK 7.

Rails—Yesterday, Today, Tomorrow 555

C. W. Gennet, Jr., before a meeting of the Chicago Maintenance of Way Club, outlining the history of the early steel rails, when they were once referred to as a "venturesome experiment," and discussing present-day experience, gives also a not too optimistic long-range view, for defects of all of the usual types are occurring in rails finished by the new processes.

Motive Power—Wartime and After 559

Characteristics of the three types of locomotives—electric, Diesel and steam—are set forth by Lawford H. Fry, director of research of the Locomotive Institute. He gives a picture of their future prospects as well as their immediate position.

How Present Events Set Course for Post-War Railroading 562

A careful examination of the financial facts that face the railroads now, and the bearing which these—and possible changes therein—will have on the carriers' ability to readjust themselves to post-war conditions, by R. V. Fletcher, chairman of the Railroad Committee for the Study of Transportation.

EDITORIAL COMMENT

1943 Traffic Reaches Its Peak	551
Local A. A. R. Car Subcommittees	552
"Integration" Program Is Too Comprehensive	552
Lost-Time Problem in Track Maintenance	553
Two Objectives of C. T. C.	553
Some By-Products of a Car Shortage	554

GENERAL ARTICLES

Rails—Yesterday, Today, Tomorrow	555
Motive Power—Wartime and After	559
How Present Events Set Course for Post-War Railroading	562
What People Think About the Railroads	565
A 44-Tonner Turns in Work Report	566

COMMUNICATIONS 567

RAILROADS-IN-WAR NEWS 569

GENERAL NEWS 574

REVENUES AND EXPENSES OF RAILWAYS 588

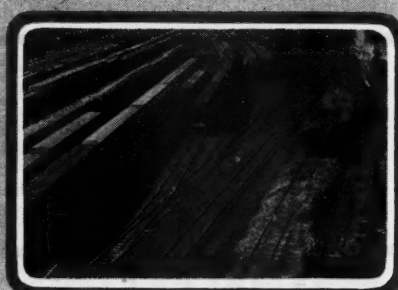
The Railway Age is indexed by the Industrial Arts Index and also by the Engineering Index Service



PRINTED IN U. S. A.



COURTESY ASSOCIATION OF AMERICAN RAILROADS



SPEED WAR DELIVERIES

MANY actual installations have proved that "UNION" YARD COMMUNICATION, through the effective coordination of yard operations, greatly increases the speed and efficiency with which war traffic is handled. This modern system provides clear and instant voice communication between the yard office and equipped locomotives working within the yard area. Therefore, the yardmaster can issue direct, detailed instructions to the engine crews upon a moment's notice when switching operations are affected by a sudden change in yard conditions. In this manner many unnecessary delays are

averted which frequently occur where less flexible means of communication are provided. The high efficiency of yard operations can be maintained regardless of smoke and adverse weather conditions because such conditions do not affect the reliable operation of "Union" Yard Communication.

The system may be installed for either "one-way" or "two-way" communication. No license is required for the installation or operation of either system and conversation is private because it cannot be tuned in by ordinary radio sets. For further information request a copy of Bulletin 158.

UNION SWITCH & SIGNAL COMPANY
SWISSVALE, PA.

NEW YORK

CHICAGO

ST. LOUIS

SAN FRANCISCO

The Week at a Glance

TOUGH 6 MONTHS AHEAD: The director of the O. D. T. expects the next half-year to be extraordinarily difficult (as reported in the news pages in this issue) for the following reasons: (a) heavy grain movement in the Northwest, (b) growing pressure on transcontinental lines as the Pacific war intensifies, (c) danger of a severe winter (against which, however, Mr. Eastman reveals that he is bespeaking Divine aid), (d) likelihood that trucks and buses will have to relinquish part of their load to the railways, (e) labor shortage.

REMEDIES: Against the coming difficulties, Mr. Eastman reports the following measures: (a) a campaign among shippers and carriers further to improve loading of cars and reduce turn-around time by 5 per cent; (b) setting aside O. D. T. Order No. 1, in direction of empty movement, to permit cars to move loads less than 10 tons direct to destination without transfer; (c) reduced crosshauling. In his campaign for more effective car utilization, the O. D. T. chief hopes to enlist railroad freight traffic solicitors who, presently, are "a source of mild irritation and question marks to the shippers."

WHAT PEOPLE THINK: Results of the third annual scientific sampling of public opinion regarding the railroads are summarized in a short article in this issue. The railroads have gained many friends during the past year—while travel inconveniences are properly blamed on war conditions. The analysts of the survey believe the carriers need to be on the alert—when congestion diminishes, service must proportionately and promptly improve. Young people, Far Westerners, lower income groups, Southerners, and women appear to be the segments of opinion which stand most in need of cultivation.

FLETCHER SURVEYS FUTURE: The railroads have thus far been denied the right to charge to expenses the maintenance outlays which labor and materials shortages are preventing. Despite this and high taxes, the carriers may nevertheless come to the war's end with \$1 billion in cash—thanks largely to the restraint of their stockholders, who have been getting only 22 per cent of the earnings accredited to them. Such figures are viewed by Judge Fletcher, chairman of the Railroad Committee for the Study of Transportation, in an address herein, as grounds for reasonable optimism regarding the railways' future—given helps and/or hindrances by the government in anything like even measure with those applied to their rivals.

WHAT'S AHEAD IN POWER?: "Some enthusiastic souls who think that we should be modern without being hampered by engineering facts would have us relegate the steam locomotive to obsolescence. . . . The most critical study leads to the conclusion that the steam locomotive must be the basic form of motive power all over

the world for many years to come." Such is the statement of Lawford Fry, director of research of the Locomotive Institute, in a paper in this issue on the characteristics and future prospects for the different types of motive power. Regarding possible improvements to the steam locomotive which might be termed "visionary", the author reminds us that "without vision the people perish."

NOTEWORTHY ACCIDENTS: I. C. C. reports have appeared on two passenger train derailments, on September 6-7, which attracted wide newspaper attention at the time, and are reviewed in the news pages herein. The derailment of the "Congressional" is ascribed to the failure of a journal, resulting from a hot box which gave no observed evidence of its existence until too late to prevent the casualty. The I. C. C. report does not attribute the accident to error or neglect on the part of anyone, nor does it recommend any changes in the road's operating practices. The "Century" derailment was caused by the explosion of the locomotive boiler, which the I. C. C. attributes to low water, and recommends that the carrier "provide crown-sheet protection in case of low water by installing suitable devices for that purpose." Despite the tremendous publicity given to these and other recent accidents, it remains a fact that "railroad travel may still be regarded as safe—and certainly far safer than highway travel," as Mr. Eastman reminded the New England Shippers Board this week.

WAGE RISE UNOPPOSED: The proposed wage increase of 13 cents per hour on the Pacific Electric (instead of 3 cents authorized by Economic Stabilizer Vinson) is supported by the company as well as by the B. of R. T. This fact was made clear at a hearing this week before the "special emergency" board appointed by the President as a part of his argument to the union to call off its strike. P. E. President Smith said the road needs the 13 cents' increase in order to retain its employees; and that the spread between industrial and transit wages is much larger in the Los Angeles area than elsewhere. It was revealed at the hearing that the P. E. paid its employees for the two days they were off on strike—a concession which the B. of R. T.'s W. P. Nutter said "was the only thing that broke the tension," and persuaded the strikers to return to work.

THE PEAK IS HERE: With October upon us, the seasonal height of traffic is probably being handled right now. As the leading editorial suggests, the ton-miles will likely attain about 70 billions during the month—which will exceed pre-war's all-time high (October, 1928) by 50 per cent and last October's record by about 13 per cent. The enormous loads the railroads are carrying, with a reduced quantity of equipment, are shown by the figures to stem largely from a vast improvement in the skill and organization of car distribu-

RAIL, NOW & IN PROSPECT: Although they are called *railroads*, it is trains rather than rails which the term calls to most minds, except maybe those of specialists in track. Yet, railroad progress (heavier, faster, safer trains) has accompanied, and can continue no further, than improvements in rail properties and structure. A paper published herein recalls what these improvements have been over the past 75 years—and what the main problem is today, viz., fissures. The immediate outlook for betterment in this sphere is not considered especially bright (because rail renewals are not keeping pace with mounting traffic). The condition can, however, as the author indicates, be controlled by inspection sufficiently frequent to catch most defects while still incipient.

DETOURS AID TRACK REPAIR: Of course, any maintenance department prefers to do its work without the interference of frequent train movement—a concession not usually feasible. There are, however, conditions under which detouring of trains away from heavy repair work can be arranged in a way to help rather than obstruct operations—this approach to the problem receiving editorial consideration in this issue.

INTEGRATION SANS MERGER: "Too swift arrives as tardy as too slow"; by asking for widespread changes in national transportation policy—including some goals that are hotly controversial—advocates of appendectomy on the outdated handicaps against the railroads may be endangering the less ambitious and easier-to-explain portion of their program. Specifically, a policy of "integration" is sought on behalf of the railroads—meaning provision for railroad operation of other agencies of transportation *plus* carrier consolidation into a few systems. An editorial herein suggests that the two parts of this program be separated, so that permission for railways to operate other agencies of transportation be not handicapped by having to bear the "monopoly" onus which is always hung upon large merger plans.

NON-OPS BLAME FDR: Upon President Roosevelt is placed the blame for the delay the non-ops are suffering in getting the wage increase they are seeking, and which the carriers have conceded. In a circular to members, the non-op magnates reveal that the President has had all the facts before him since September 16.

SUPREME COURT CASES: The B. of R. T. will soon be before the Supreme Court, arguing that it should not have been enjoined by a federal court against violence or threats of violence in restraint of interstate commerce, in its controversy with the T. P. & W. It appears to be a general union belief that the privilege of violence or threats thereof is one of "labor's gains". Other transportation cases which are now before the high court are reviewed in the news pages in this issue.

SEASONED VETERANS FOR THE POST-WAR ERA

Today on the Great Northern, GM Diesel Locomotives like this are hauling heavy war loads through "The Great West." On one mountain operation, consisting chiefly of movement of metal vital to victory, the utilization of GM Freight Diesels showed an increase of 50% in tonnage capacity.



THE GREAT WEST.

Here Currier and Ives, the famous portrayers of American life of the past century, depict one of the great eras of rail-roading—the achievement of rail transportation from East to West—the opening up of new lands and unexplored resources.

WHATEVER problems peace and the post-war era may bring to the railroads, one thing is certain. The super-efficiency with which they have handled the largest volume of traffic in all time, assures their ability to meet successfully the many new conditions which are certain to appear after the war . . . This is particularly true of those railroads operating General Motors Diesel Road Locomotives. Conceived in peace time, they are now *seasoned veterans*, having proved their ability to provide — greater tonnage-hauling capacity — faster schedules — reduction in train miles as much as 50 percent — higher availability — less wear and tear on track and bridge structures — lower operating costs — increased revenues.



★ **BACK THE ATTACK — BUY MORE WAR BONDS** ★

ELECTRO-MOTIVE DIVISION

GENERAL MOTORS CORPORATION

LA GRANGE, ILLINOIS, U.S.A.

RAILWAY AGE

1943 Traffic Reaches Its Peak

The freight traffic of 1943 is now—or soon will be—at its peak; and again there is being reached the highest peak in all history. October almost invariably is the month of largest traffic; and some week in October almost invariably reports the largest traffic of any week of the year.

The pre-war high record of the railways was made in October, 1928, when ton-mileage was almost 45 billion. In the depression years 1932, 1933 and 1934 traffic in October only slightly exceeded 24 billion ton-miles. The October, 1928, record was first broken in August, 1941; was again exceeded in October, 1941; and has now been exceeded in *every month* since February, 1942. In 1942 traffic rose to a peak in October exceeding 62 billion ton-miles. This was almost equalled in May, 1943, and was exceeded in both July and August. At the rate at which traffic recently has been increasing it apparently will set a new all-time record in October, 1943, of almost 70 billion ton-miles. This will exceed the pre-war monthly record made in October, 1928, by 50 per cent. It will also exceed by 45 per cent the traffic handled in October, 1941, for which month a "car shortage" of anywhere from 80,000 to 132,000 cars was predicted by "experts" who had the ear of official Washington, and who were then criticizing railway managements for their "lack of foresight" and other delinquencies.

The railways are not getting through without shortages; but the facts regarding current surpluses and shortages are no less significant than those regarding the amount of traffic being handled. There are about 2,000,000 freight cars available. The task of distributing so many cars throughout the country so as not to have both sporadic surpluses and shortages is obviously a huge and difficult one. The so-called "car shortages" prior to twenty years ago were always largely due to faulty distribution. An extreme example is afforded by the fact that in the same week in August, 1922, in which there were reported "shortages" aggregating 60,000 cars there were also reported "surpluses" aggregating 70,000.

Very different is the present system of distribution and the resulting car situation. With surpluses ranging from only 23,000 to 27,000 cars in August, shortages ranged from nothing to 1,496. In the three weeks ending with September 18 surpluses ranged from 19,513 to 21,429—about 1 per cent of the number of cars on line and the smallest reported since 1923; and shortages ranged from 818 to 2,861. This was in very striking contrast to the record "shortage" of 179,000 cars reported in October, 1922, when the number of freight cars on line was 280,000 greater than now and the freight traffic being handled was only half as large. There is reason to fear that when all reports for October, 1943, are available they will show some of the most severe local shortages of cars in years; but, considering the government restrictions that have been imposed on the acquisition of railway equipment and materials, and the volume of traffic being handled, the most surprising fact about the shortages will be that they were not much larger.

Nothing so amazing has occurred on the home front during the war as the capacity the railways have disclosed by their actual performance. The development of other carriers by government subsidies has been promoted as a means of "relieving" the railways. The Interstate Commerce Commission estimates (annual report for 1942, page 7) that the total freight traffic handled by railway, Great Lakes and other inland waterways, highway, pipe-line and air was 612 bil-

Efficiency
FOR VICTORY

lion ton-miles in 1940 and 757 billion ton-miles in 1941. Of this 36.4 per cent was handled in 1941 by carriers other than railways. The 638 billion ton-miles handled by the Class I railways in 1942 exceeded the total handled by all carriers in 1940; and the approximately 800 billion ton-miles that will be handled by the Class I railways in 1943 will exceed the total handled by all carriers in 1941. Three years ago spokesmen of other carriers called the railways "decadent"; but the mere increase in the traffic handled by the Class I railways this year as compared with 1940 will be *twice as great* as the total traffic handled by all the other carriers in 1940.

Local A.A.R. Car Subcommittees

While most of the credit for the efficient handling of cars during the last several years belongs to individuals on the various roads, there has been a marked improvement in the understanding of problems involved because of the operations of the various subcommittees of the Mechanical Division of the A. A. R. Monthly meetings for the discussion of questions of immediate interest are being held in various terminal areas by responsible car department officers. Those attending the meetings represent not only railroad companies but also private car owners whose equipment is extensively employed within the area or who maintain shops or other repair facilities nearby.

Such meetings have proved to be of particular value with respect to the handling of oil movements. Talking off the record, most of the participants are frank in admitting errors of omissions or commission. Meetings do not develop into the—"You did", "I didn't"—stage but the open discussion among the members of the committees quite frequently bring out methods by which supervisory officers can improve the work for which they are responsible. At a recent meeting of one of these committees, the representative of one company was able to tell how his organization had been able to improve its record with respect to hot boxes to a point where that record was one of the best in the country. The answer, manpower and effective supervision, was quite simple but, in the general discussion which followed, all committee members present brought out their immediate problems, their methods of dealing with them, and their thoughts of what should be done. Similar discussions have been carried on with respect to most of the problems which confront car department supervisors and the willingness of all members to participate has broadened the outlook of all.

Such cooperation and understanding of each other's problem by the men "on the ground" have added much to the effectiveness of the railroads' work during the war. Not all roads, nor all private-car companies, have participated whole-heartedly in the work of these committees. Those which have are being well repaid in increased effectiveness of control of car conditions.

"Integration" Program Is Too Comprehensive

There are two distinct proposals with regard to this country's future transportation policy which, for public discussion, have been grouped under the inclusive term "integration"—and which ought to be separated, lest failure to win support for one of the proposals also entail defeat of the other.

These proposals, in combination designated "integration", are the following:

1. That the railroads be permitted to operate on the highways, by water, and in the air, and
2. That the railroads be combined into a limited number of large competing systems, each system offering, not only railroad transportation, but service by all other forms as well.

The second proposal is likely to encounter considerable honest and intelligent disagreement. We are familiar with all the arguments for wholesale consolidation of railroads. Some of them are persuasive. On the other hand, there are so many conditions necessary to attach to any wholesale consolidation plan—in order to make it generally acceptable to management, shippers, and organized labor—that prolonged discussion and controversy must inevitably attend such a proposal.

There is no such controversy inherent in the recommendation that railroads be permitted to utilize other agencies of transportation in providing an all-round service to the public. Railroad provision of transportation by highway is already permissible, under regulation by the Interstate Commerce Commission. As far as the actual law goes, the railroads are also allowed to engage in air transportation, under limitations similar to those imposed upon them with respect to highway transportation. As a practical matter, however, the Civil Aeronautics Board has stretched the law in an interpretation which, if it stands, will prohibit the railroads from offering air services. Operation by railroads on inland and coastwise waterways is all but completely prohibited under the Panama Canal Act.

There is little or no objection from competent and disinterested sources to the removal of the restrictions on provision by the railroads of highway, water and air transportation. There are plenty of misgivings on the part of many trustworthy authorities as to the advisability of arbitrarily pouring the entire railroad network into a mold containing only a dozen or eighteen compartments. By combining this latter objective—well-intentioned though its advocates be—with the former, there is grave danger that neither will be attained.

The opposition to railroad expansion onto the water and highways and into the air is almost entirely self-interested, zealous, or demagogic—or all three. As indicated in these pages in our October 2 issue, prac-

tically all competent and disinterested opinion favors such expansion by the railroads. The opposition comes almost solely from perennial dissenters, such as Senator Wheeler and Thurman Arnold, and from those who wish to serve the present near-monopolies on the water or in the air, or who have monopolistic ambitions as regards the highways.

If unencumbered by the burden of defending wholesale railroad consolidations, it appears that the public interest to be served by permitting the railroads to keep their services modern by adopting new transportation tools as they come along would stand a good chance of public acceptance.

Lost-Time Problem in Track Maintenance

Interruptions of track work by traffic constitute a problem that is inherent in such work. All maintenance officers recognize that resulting losses of productive time are inevitable; but it is a common complaint among them that delays can be reduced substantially by operating officers becoming more cooperative in relinquishing tracks for the use of track forces.

Under present conditions, with traffic much heavier than ever, the problem created by traffic interference with track gangs has become more serious than ever. It is hardly necessary to mention that, while, under such conditions, costs are increased greatly, maintenance forces can operate at only a fraction of their potential capacity, a fact especially important when it is imperative that the limited supply of manpower and machines be used with maximum effectiveness.

The increasing use of off-track types of work equipment, even before the war, constitutes one expedient that has been devised to help solve this problem. But obviously this is not a complete solution; and even its potentialities have been only partially realizable in the present emergency, because the armed forces have absorbed a lion's share of the output of such equipment. Some roads have developed a closer liaison between their maintenance and operating departments, as a result of which the track forces are realizing some benefits in the form, for instance, of more freedom in obtaining the use of main-line tracks for brief periods. But here again the benefits have been limited in extent and local in character.

What is needed is an entirely new approach to the problem, and a determination of both the maintenance and operating departments to refuse to permit tradition and precedent to influence their thinking. On one railroad on which such an approach was achieved, a new system of track maintenance has been devised and placed in effect on a double-track main line, which is reported to be producing highly satisfactory results. In view of the nature of the plan, it is highly

significant that it was adopted with the hearty support of the operating department.

The basis of the plan is the idea, employed to a limited extent on many roads, of detouring traffic over adjacent tracks to permit maintenance work to be done in the clear. Briefly, it involves setting off a multiple-track district into detour sections of appropriate length, using temporary crossovers where necessary, over which a large gang moves progressively from detour to detour, performing practically all necessary track work in each section before moving on to the next one. All trains are detoured around the particular section of track on which the gang is working at a given time. The work performed includes track surfacing and ballasting, tie renewals, rail laying, rail-end welding, certain bridge work and other necessary out-of-face jobs. The policy is for a gang to move over a given district in this manner every three or four years, so that in the interim only such spotting work will be necessary as can be performed by the regular section forces.

The advantages of such a system to the maintenance department are as obvious as they are important. In the absence of train interference, the output per man-day is limited only by the effectiveness of the planning and supervision, the degree of mechanization, and the energy and efficiency of the individual workers. For the operating department, the reasoning is that there is only one detour in the district at any given time, whereas otherwise there would be a series of gangs at different points, each possibly involving a speed restriction.

It is not intended to imply that this system is the final answer to the problem, or even that it has more than a limited application. Its significance lies largely in the fact that it is a product of the type of thinking and departmental co-operation which can do much to solve present and post-war problems of the railroads.

Two Objectives of C. T. C.

When the executives of a certain railroad were analyzing the benefits to be secured from a proposed installation of centralized traffic control on an extended section of single track, their attention was called to two objectives to be attained by the new facilities.

The first of these objectives is to expedite train movements and increase the capacity of the existing track as well as of the locomotives. For the most part, this result is accomplished by using the semi-automatic C. T. C.-controlled signals to authorize train movements, thus superseding time table and train orders. The saving in time is accomplished, in part, by the use of power switches in the C. T. C. system, thereby obviating train stops which had been required previously to operate hand-throw switch stands at the

passing tracks. Analysis of results being obtained on various C. T. C. installations which have been in service for some time show that, on the average, the overall time of through freight trains has been reduced approximately one minute per mile of road. For illustration, on one project 26 miles long, the time required by loaded trains moving in one direction was reduced 30 minutes, while on another project 175 miles long the average freight train time was reduced about three hours.

The second objective to be obtained by the proposed C. T. C. installation is to eliminate much of the expense for operating the time table and train order system of authorizing train movements, this item consisting primarily of the cost involved in maintaining offices at numerous passing tracks.

During the war the most important objective is to get trains over the road in minimum time, without too much consideration of the expense involved. In the post-war period, the overall time of trains must be decreased still further and operating expenses must be held in line, both in order to meet the competition of other forms of transportation. Thus from numerous angles, a logical procedure is to plan installations of centralized traffic control on important single track lines on which the present as well as future traffic warrants the outlay for the necessary facilities.

Some By-Products of a Car Shortage

The railways are now experiencing a serious shortage of cars for the first time in years. This shortage is especially acute in the grain-raising states of Minnesota, North and South Dakota and Montana, where more than 1000 elevators are closed, some since last June. This condition has been brought about in part by the utilization of much of the storage space in these country elevators for Commodity Credit grain, and has been accentuated by the largest harvests in years. By the time the government agency was prepared to move this storage grain to the terminal elevators, heavy demands elsewhere left a supply of cars suitable for grain loading that has been inadequate to the demands of the Northwest. As a result, farmers are storing large quantities of grain on the ground, with the risk of deterioration, at a time when shortages in world grain supplies are predicted and efforts are being made to increase plantings for next year.

Recognizing the acuteness of this situation, the Northwest Shippers Advisory Board called a special meeting at St. Paul last week, a report of which appears in our news columns. At this meeting several developments of significant interest were apparent.

In the first place, the action of this Advisory Board in recognizing the emergency nature of this situation and calling a special meeting of its members to con-

sider it demonstrates the flexibility that is possible through these advisory boards. No group should be closer to the needs of the shippers of a given area than these shippers themselves and the existence of an organization of these shippers gives them a means for directing attention to their problems and devising solutions therefor.

A further development of significance was the entire absence, among the protestants, of any criticism of the fact that they were confronted with a shortage of cars. They realized that this was due to the magnitude of the war demands and expressed entire willingness to bear their share of the burden of such measures as might be necessary to cope with this situation. Their entire complaint was with the basis for the distribution of those cars that are available. Equally significant was the willingness expressed by representatives of the Car Service division and of the O. D. T. to adopt those measures that would serve the shippers of that area most adequately.

A further development that affords a commentary on the times in which we are living is the fact that the rule to which objection was taken was drafted 23 years ago, at a time when the competition between elevators was confined primarily to those in one town, whereas truck transportation on the highways has now developed to the point where a farmer is afforded a choice of elevators at many shipping points within a radius as wide as 50 miles.

A further and final observation of this meeting was the recognition by all participants of the complete dependence of the elevator operators, and of the farmers back of them, on rail transportation, and the appreciation that was so freely expressed of the excellence of the nation-wide job that the railways are doing. In many respects, this meeting realized a long-desired goal in railway-shipper relationships.

Does Wheeler's Proposal Actually Favor Transport Competition?

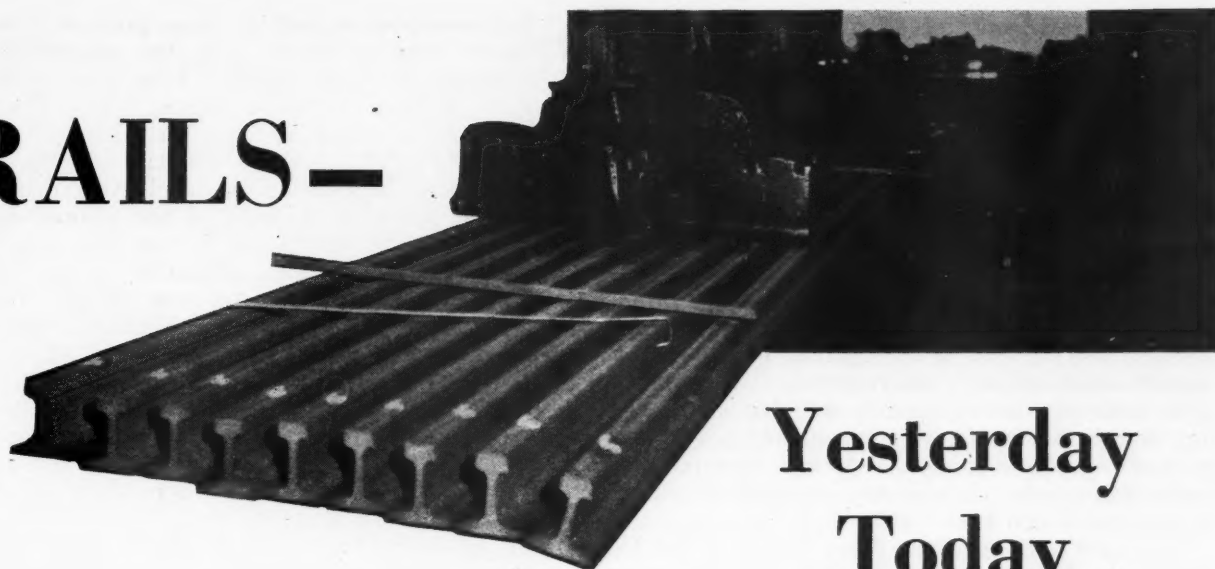
"This newspaper is unable to understand the reasoning behind Senator Wheeler's intention to promote legislation prohibiting railroads from engaging in transportation forms other than that in which they are directly concerned. The purpose of that is apparently to prevent 'monopoly' and preserve 'competition'—as is evidenced by the support given the proposal by the Department of Justice. . . .

"The theory of Senator Wheeler apparently is that by keeping the railroads in their own exclusive field, competition would be kept at a maximum. But what basis is there for this assumption. Is it not likely that competition would tend to be increased rather than diminished by railroads entering the highway, water and air fields? How would the diminution tend to come in? . . .

"It is extremely unlikely that railroads owning and operating buses and trucks could drive independents from the road even were they free to do so and they are not free. . . . Why pass a rigid statute forbidding something which is already under complete public control and is therefore, impotent so far as monopolistic exploitation of the public is concerned?"

—From the Wall Street Journal

RAILS—



Yesterday Today Tomorrow

Many new and complex problems arising continually in connection with the prevalence of a wide variety of defects suggest need for more constructive action*

By C. W. Gennet, Jr.

Vice-President, Sperry Rail Service, Chicago

IT is an astonishing development when one considers that the mileage of all railway tracks in the United States has increased from 23 in 1830 to more than 400,000 today, or more than 17,000 times, in a period of only a little more than 100 years. This great expansion could not have taken place if it had not been for steel, and particularly for steel rails, which had their beginning with the start of Bessemer manufacture in 1865. Although some Bessemer rails had been imported into this country as early as 1863, it was not until 1867 that the first commercial order for rails was actually rolled in the United States, and then only 2,227 tons were made, at a price of about \$160 a ton.

At this time the Civil War was over and the great era of railway expansion had begun. As railway men grasped the advantage of steel over iron for making rails, despite the fear of brittleness in some quarters, the manufacture of steel, and especially of steel rails, went forward by leaps and bounds. For several years, even as late as 1873, from 85 to 95 per cent of all of the steel manufactured went into rails. In 1906, the all-time high of about four million tons of rails were rolled, and since then the production of rails has been declining relatively, until in 1941, only about two per cent of the steel manufactured was rolled into rails. Open-hearth rails were first rolled in 1878, but it was not until 1904 that they became an important competitor of Bessemer rails. In 1911, the production of open-hearth rails passed that of Bessemer rails, and today particularly all rail is made by the open-hearth process.

One important observation to be drawn from this brief historical review is that what years ago was a great industrial factor is no longer so largely in the limelight. Of late, instead of being made into rails, steel has been diverted to automobiles and airplanes to

some extent. But the impact that rails made on the popular imagination years ago has carried over, so that they are still a fascinating subject for the layman, while they have become of continually increasing importance, for the engineer and the railway executive, mainly because of the many new and complex problems they are constantly creating.

Earlier Rails Were Not Good

This does not imply that the earlier rails were so good that they were immune from troubles. On the contrary, a "snake head" rail caused a crash on the Mohawk & Hudson as far back as 1844, and another is reported to have wrecked the train which preceded the one carrying Abraham Lincoln to Washington. These oldtime, wrought-iron rails, regardless of their section, were prone to develop splits, and transverse failures attributed to crystallization or brittleness were not uncommon.

Early trials of steel rails, sometimes referred to as a venturesome experiment by American railway managers, easily pointed to their superior wearing qualities, compared with the iron rails. It is reported that a few steel rails on curves lasted for five years, while the ordinary life of iron rails in the same places did not exceed four months. Likewise it was reported that "the Chicago & North Western, in 1873, replaced the iron rails on its Milwaukee division with steel rails". It was also reported that Canadian railway authorities agreed "that greater economy and safety are obtained by the substitution of steel for iron rails," and that "the intense cold of their winters caused the breakage of a much larger percentage of the latter than of the former". One instance is reported wherein "the percentage of maintenance has fallen to 15.6 per cent of the receipts, against 20 per cent, because of the adoption of steel instead of iron rails".

On the whole, the transition from iron rails to steel was an easy one, and spurred on by the era of railway

* Presented before a meeting of the Maintenance of Way Club of Chicago.

expansion, Bessemer steel became the recognized standard. Everything went as well as could be expected, but with the same urge for improved economy and practices that has always characterized railway engineers, defects of the various types that were found in rails were reported and studied. Split heads, often confused with pipes; broken bases, of the moon-shaped variety; web failures; excessive flow; and often a complete transverse fracture which, if not associated with a broken base, was usually attributed to excessively hard steel, aggravated, perhaps, by very cold weather; were all of comparatively frequent occurrence. As far back as 1880 to 1885 a form of corrugation, giving rise to the term "washboard rail", was reported. Taken altogether, it is doubtful whether there is anything in the way of rail trouble today that was not already within the experience of the engineers of a half to three-quarters century ago, save only one very important trouble which will be mentioned later.

With the opening of the Gary works of the United States Steel Corporation, in 1909, the production of rails by the open-hearth process was greatly increased. Other mills followed promptly, and because of the superior wearing qualities and reduced brittleness of the open-hearth steel, open-hearth rails were received with immediate and widespread favor and it was not long until their adoption was almost universal. Then two or three things occurred that tended to focus attention on the rails of today.

Rail Troubles Aggravated by Cold

Among others, the winter of 1912 was extremely cold and severe, and figuratively, if not literally, broken rails occurred from one end of the country to the other. Complaints were so frequent and so insistent that Judge Gary, the redoubtable head of the Steel Corporation, if not of the steel industry, called a meeting of the principal railway executives, and others, for a discussion of the matter. Nothing of consequence happened immediately as a direct result of this meeting, but apparently nature took the matter in hand by moderating the weather shortly thereafter. In any event, the new ARA sections, with their heavier bases, compared with the ASCE sections which they were superseding, were also being adopted quite generally, while the use of heavier rails was becoming recognized as a distinct necessity where the volume of traffic and axle loads were heavy.

It should also be mentioned that the inspection of rails came in for greater attention and, for the first time, competent inspectors were placed in various parts of all mills to oversee and report on manufacturing conditions. Again, about this time, the Rail committee of the American Railway Engineering Association appointed an engineer of tests for the purpose of making tests and studies of the various phases of the rail problem.

Of equal, if not of greater importance than some of the incidents already mentioned, early in 1912, almost coincident with the rampant discussions of the seriousness of the rail problem, the Bureau of Safety released the epochal report of the late Dr. Howard on the derailment which occurred on the Lehigh Valley, at Manchester, N. Y., on August 25, 1911, in which 29 persons were killed and 62 were injured. He ascribed the primary cause for the Manchester wreck to "the formation and development of transverse fissures and longitudinal seams in the head of this rail".

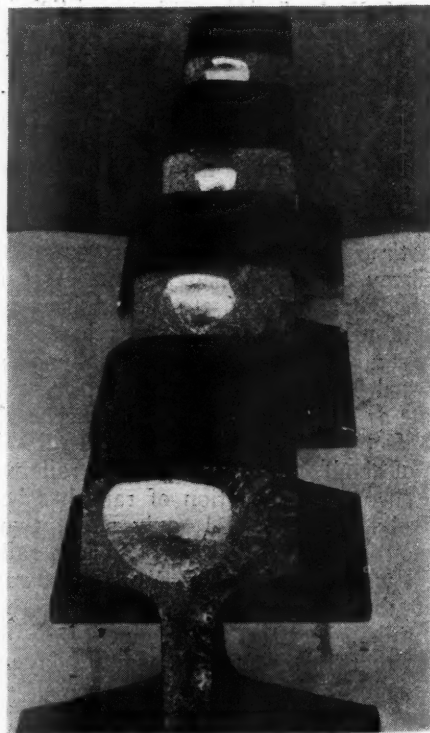
Frankly, this "transverse fissure", so called for the first time, was something new, but it required only a

little snooping around the scrap piles of broken, open-hearth rails to confirm both the seriousness and the extent of the new disease. How many fissured rails there have been in the intervening 30 years is anybody's guess, but the Rail committee's statistics for 1941, gives a list of 54,000 found in service and 103,000 more found by detector cars during the last 10 years, on about half of the main-line mileage of the United States and Canada. The simple fact is that this type of defect occurs in such numbers and under such conditions that it is plainly constitutes the most dangerous menace to safe railway transportation with which it has ever been necessary to contend.

All of the general facts connected with transverse fissures are so well known and have been discussed so repeatedly in reports and papers that it would be a waste of time to review them here. Instead, we will touch on a few of the more pertinent points of the fissure problem today, as it is disclosed by the results of the operation of our 16 Sperry detector cars on a large number of separate roads, under practically all kinds of conditions.

Probably the first and most frequent question we are asked is, how often should track be tested. At present, based on actual practice, there is no good formula by which this can be determined, for practice varies widely. In fact, it is doubtful whether a rule can be laid down that will cover all cases and still be reliable. So many factors and variables bear on the development and growth of fissures that it is almost impossible to give the correct weight to each one. For instance, the rapidity of growth must depend on the number of wheels and, perhaps, on the loads they carry, while the speed of traffic and the age of the rails are factors of primary importance.

Apparently, the composition of the steel, that is, whether it is a hard or a mild grade; probably, the design and weight of the rails; and, probably, the char-



The Transverse Fissure Rate Is Showing a Serious Increase Under Today's Heavy Traffic and a Number of Multi-Fissured Rails, As the One Shown, Are Being Formed



Rail Detector Cars Are Inspecting a Larger Mileage, and More Frequently Than Ever Before, in Search of Hidden Defects

acter of the roadbed, are all contributing and complicating factors, making a prediction by formula quite as difficult as to forecast diseases in men.

On the other hand, experience is beginning to be helpful. Thus the first test of about 1,500 miles of an average conditioned road showed a fissured-rail rate of about 20 per 100 track miles. Of the fissures found, 36 per cent were of small size, that is, less than 20 per cent, 43 per cent were medium and large, and 21 per cent were actually cracked out to the surface. This same track was tested again after an interval of eight months and, while less than half as many fissured rails were found, 51 per cent were small, 36 per cent were medium and large, and 13 per cent were cracked out. These ratios pointed clearly to the possibility of fairly rapid fissure growth that more frequent testing might be expected to alleviate.

Catching Fissures in Incipient Stage

In another case, four tests were made on a high-speed, heavy-traffic road at intervals of 60 to 80 days. The number of fissures detected was rather high, aggregating 33 per hundred miles for the four tests. But the unquestioned benefit obtained from frequent testing is well shown by the fact that the small fissures represented 87 per cent of the total; the medium and large, 12 per cent; and only 1 per cent was cracked out.

A third case is that of a road that has been tested consistently for 12 years and, depending on conditions, all main tracks have been covered twice a year for several years, and some have been tested as many as three and four times a year. The result of this consistent testing is that last year, 83 per cent of the fissures were small, 12 per cent were medium and large, and only 5 per cent were cracked out.

Medium size, large and cracked-out fissures obviously constitute the major hazard. In general, the aim should be, therefore, to test with sufficient frequency to insure the finding of as large a proportion of small fissures as possible. This will reduce the chance that the little ones will grow into the more perilous sizes.

It should not be assumed, however, that it is always the large fissures that cause the most trouble. There are frequent instances where small fissures have grown suddenly. Instances of this kind can almost always be confirmed easily by examining the fractured surfaces, which will reveal a "mother" fissure, usually of a size that cannot be detected. This will be surrounded, in part at least, by the customary rings that are indicative of growth, but some of the rings will be separated by areas of crystalline structure. The whole appearance has been described as resembling an oyster shell. In his very excellent reports, Professor Moore has said that something like one wheel in a thousand might be expected to give the rail a blow with sufficient force to make a fissure spread. Extending this reasoning, this simply means that the blow of a flat wheel or, perhaps, the counterbalance effect of a locomotive driving wheel, has coincided with the fissure in the rail and has caused it to spread suddenly.

Fissures May Grow Rapidly

Other cases of possible abnormal growth occur in connection with which the detector car is sometimes blamed unjustly or improperly—and it might be added, impolitely—for failure to find certain fissures that have merely developed faster than might be expected, measured by the normal rate of growth.

Incidents that have occurred in the field illustrate the fact that an occasional fissure will have such abnormally rapid growth that it does not seem to follow any rule. As an example, on one occasion an indication was obtained almost at the end of a day's run, and it was given a hand test with a negative result. In the morning, following the passage of several heavily loaded coal trains, the rail was tested again by hand, and an easily-determined five-per cent fissure was found. On another occasion, a 90-per cent, air-tight fissure, that is, one with no surface indication of its presence, was found. Before the rail could be removed from the track, a freight train of 160 loaded cars passed over it. Re-examination showed that the fissure had cracked through the head and into the web.

Still another case is recorded in connection with one of the test rails at the University of Illinois. In this rail, a fissure of undetectable size grew into one of 60-per cent magnitude in an interval of 178 days, during which 8,200,000 tons of traffic passed over it. These examples illustrate that what may be considered normal or average growth is sometimes fairly rapid, and that, altogether the rate of fissure growth is unpredictable, being clearly complicated by many factors.

The effect of the large increase in gross ton-miles on rail is somewhat debatable at present, for certainly preliminary figures do not bear out some predictions of a greatly increased number of fissured rails, corresponding to the increase in traffic now being handled. At present the writer is strongly inclined to believe that in the long run, the number of wheels, that is, the number of passing cars, is of greater importance in the development of fissures than the tonnage actually carried by these cars and wheels. This not to admit a total disregard of the effect of wheel loads of either cars or locomotives. It is simply to call attention to the fact that the continual pound, pound, pound of a great number of car wheels probably has more influence on the development of fissures than fewer but more heavily-loaded wheels would have.

Car loadings, probably the best gage of the number of cars handled, increased materially in 1941, com-

pared with 1940. Correspondingly, our figures for all fissured rails found increased 40 per cent for that year. Needless to say, there was also a large increase in the gross ton-miles. But, last year, 1942, when car loading were approximately the same as in 1941, the number of fissured rails found was practically the same, notwithstanding an increase of about 30 per cent in the tonnage handled. As a check on this important matter, the writer took the figures for a few roads, selected to represent average conditions geographically and in other respects. These figures practically confirm those just given and point to the probability that the ton-miles of traffic are not, themselves, an index of the development of fissures. The number of passing cars, the age of the rails, the condition of the track and roadbed and, certainly, of the equipment, seem to be factors of much greater magnitude and importance than ton-miles alone.

Immediate Future Not Bright

From this point of view, the immediate future for rails is not bright. Statistics already show a marked increase in the number of train accidents resulting from defective equipment and maintenance of way. The effect of careless or negligent employees is telling. Inability to obtain new rails means that the life of the old, and probably lighter, rails must be stretched out and every practicable action taken to keep them going, even with depleted and inexperienced track forces.

On the other hand, the writer believes that a very substantial and reliable safeguard against the hazard of broken rails lies in the generous and frequent use of modern and improved detector cars. That there has been a wide recognition of the value of detector-car testing in this period of national emergency, is shown by the fact that in 1942, our fleet of 16 cars tested 40 per cent more track mileage than in 1941.

In this connection, it should be emphasized that one great advantage of testing with a detector car is its ability to locate definitely large numbers of rails possessing vital defects, in addition to those actually containing fissures.

Other Defects Located in Fissure Tests

Last year, only 48 per cent of all the defective rails found by these cars were classified as containing fissures. In addition to those containing fissures, 41 per cent of the total number found to be defective contained vertical or horizontal split heads; 10 per cent were defective because of engine burns; and 1 per cent carried defects of miscellaneous types. Specifically, while testing primarily for fissures, 45,000 rails containing other defects were located, each one of which was a potential hazard, if allowed to remain in the track. Despite the shortcomings sometimes attributed to detector-car operations, and which we are striving constantly to overcome, the fact remains that the best way of attacking the threat of broken rails is by a liberal use of this comparatively new testing device.

The long-range view of rails for tomorrow discloses as many perplexities as the short-range view, and the writer is none too optimistic about the whole situation. A hasty review of the report of the Rail committee on controlled cooled and Brunorized rail does not make such rails appear attractive or encouraging, although the figures have been given in such an obtuse way as to restrict desirable comparisons. One thing gleaned from

the report is perfectly clear, however, and this is that defects of practically all of the usual types are occurring in the rails finished by these new processes, in sufficient number to warrant that they be tested the same as other rails.

Closer Attention to Steel Making Advisable

The continued prevalence of split heads, of both the vertical and horizontal types, of cracked webs and of broken bases are matters that should now and must ultimately be given more and closer attention. Fissured rails, because this hidden defect is likely to break out at any time, are a constant and deadly peril. Yet, the expense involved, compared with split heads and broken bases, may not be very different.

Much criticism has been directed to the wearing quality of rails, to the development of shelly spots that are likely to grow into a type of compound fissure, to fillet cracks and to head checks. All of this leads to a certain bewilderment, and to the thought that something ought to be done. Perhaps some of the newly-proposed sections will help in various ways, but, certainly, there will be complications and they will not be likely to reduce the prevalence of the most predominating types of defects.

Good attention to the steel-making process is more essential than ever, because the large furnaces, heats and ingots have tended to increase the chances for bad practice and for unsound and dirty steel. In many ways the rolling practice, meaning the design of the passes, is the same today for 152-lb. rails as it was 70 years ago for the 50 and 60-lb. rails of that day. Perhaps new rolling methods should be developed. Perhaps, also, some form of alloy steel, possibly heat-treated, will be proposed. Finally, who knows but that the rails of tomorrow may be of some composite section which will make the use of angle bars and tie plates unnecessary; in which the wearing surface will be of a hardened steel that is free from splits, seams and shatter cracks; and which is welded onto the body of the rail.

Subsidize All Transportation or None

"Whether the movement by the railroads to invade the field of aviation is successful or whether it is not, it should go far toward clarification of the country's post-war railroad policy. The chief argument of the carriers for being permitted to establish their own air lines is that this would tend to overcome certain of the competitive disadvantages under which they now operate. Specifically, it would enable them to enjoy the subsidies under which their air-line competitors function at the present time. . . .

"The railroads are at present enjoying the greatest prosperity in their modern history, yet the quotations on railroad securities indicate clearly that the investment public is skeptical about the post-war outlook for the carriers. The principal reason for this is to be found in this unequal competition which the carriers have been forced to meet in the last few years from the highways, inland waterways and airlines, and which they will have to meet in a more intense form in the future unless a more enlightened philosophy toward transportation as a whole is adopted by Congress. Common sense indicates that this involves either permitting the carriers to share in the subsidies granted their competitors or making those competitors pay their way just as the railroads do."

—From the N. Y. Herald-Tribune.

Motive Power—Wartime and After*

How the three types of locomotives are now performing—
Their prospects for further development in varied uses

By Lawford H. Fry,

Director of Research, the Locomotive Institute

IN considering the influence of the war on present and future development of railroad equipment one of the first things noted is that although the war is loading the railroads to the limit of their endurance, it did not find them unprepared. In the last 10 years railroad equipment has been undergoing a steady growth and improvement. Builders and users participated actively and the extraordinary demands made by war conditions have shown that their work was soundly done. With relatively small additions to equipment a tremendously increased traffic is being handled. Net tons of freight hauled per mile of road per day increased from 4,800 in 1940 to over 8,100 in 1942. Passenger miles in May, 1943, were four times those of 1941.

In general, the effect of the war has been to emphasize the necessity for making the most efficient possible use of existing rolling stock. No great evolutionary changes in design have been produced. New designs have been avoided as far as possible to conserve engineering manpower. The building of new rolling stock has been rather severely restricted and the scarcity of critical materials has necessitated some changes in construction. In car construction the shortage of steel plates has led to the use of emergency designs with wood taking the place of steel as far as practicable.

Track

The present paper in discussing railroad equipment deals more particularly with rolling stock, with the strongest emphasis on motive power, but it must not be forgotten that rolling stock is only one of the legs of the three-legged stool of railroading. A railroad stands firm when its three supports—road, rolling stock and personnel—are in proper proportion. It is fundamental that the civil engineer builds the railroad and that the structure which he provides—the track with its grades, curves, rails and bridges—has an important influence on how the locomotive engineer finally shapes his machines to handle a given traffic.

One constant aim in railroading is to move more rapidly from place to place. To do this it is not sufficient for the car and locomotive engineers to provide easy riding cars and locomotives which can run a few miles an hour faster than their predecessors. Far more can be gained by civil engineering that will eliminate slowdowns than by locomotive engineering that adds five miles an hour to the top speed of the locomotive. The railroads have recognized this and their civil engineering work in the last ten years has been of great value in carrying the present abnormal traffic.

In the case also of the rolling stock, development work is bearing fruit. The war traffic is not being handled by material which has sprung full grown from the brains of our engineers. It is being carried by, and is proving the efficiency of, the rolling stock developed during peacetime. New equipment has had to be provided, and more is badly needed, but conservation of time and of the engineering manpower required for new designs has led to reproduction of existing types with only such changes as were made necessary by shortages of critical materials.

Electrification—Diesel—Steam

Three forms of motive power are moving the war traffic—electric, Diesel and the steam locomotive on which the railroads grew up. All three forms were in active development when the war came. The Pennsylvania had just completed electrification of 675 miles of the most heavily traveled part of its line—New York to Washington, D. C., and Harrisburg, Pa.—and in 1941 was hauling electrically over 54 per cent of the system passenger mileage and over 15 per cent of the system freight ton mileage. The Diesel-electric locomotive had won a prominent place in switching, passenger and freight service. The steam locomotive, which was handling the bulk of the nation's traffic, was showing active growth in power and efficiency.

All three forms of motive power have their proper place in the railroad economy. Some enthusiastic souls who think that we should be modern without being hampered by engineering facts would have us relegate the steam locomotive to obsolescence. Cold analysis does not confirm this view, but supports the warm admiration that many of us have for steam. The most critical study leads to the conclusion that the steam locomotive must be the basic form of motive power all over the world for many years to come.

Differences between electric, Diesel and steam power lies in the means used for transforming the potential thermal energy of a fuel into effective mechanical work at the rim of the driving wheels. In the case of the electric locomotive the energy developed at the driving wheels is generated in a stationary power plant and delivered over an elaborate transmission system. The electric locomotive is all driving mechanism. Tractive force is limited only by the weight on driving wheels. The energy from the line available for traction is practically unlimited so that the amount of horsepower that can be developed by the locomotive is restricted only by the amount of current that the motors can carry without overheating. For short bursts a heavy overload can be carried. This makes the electric locomotive very effective in accelerating a train and in taking advantage of momentum grades. Weight for weight, the electric locomotive can out-haul the

* From a paper entitled "The Development of Railroad Equipment During Wartime and Its Application to Peacetime Transportation," presented at a joint meeting of the Engineering Institute of Canada and the American Society of Mechanical Engineers at Toronto, Ont., September 30, 1943.

steam locomotive and the Diesel, but the high first cost of the transmission system limits efficient electric operation to lines of high traffic density. Under conditions such as prevail on the Pennsylvania between New York and Washington electric operation carries a volume of traffic which would require additional trackage if steam or Diesel power were used.

The steam locomotive is a self-contained mobile power plant. The thermal energy of the fuel is transformed in firebox and boiler to produce steam. In the cylinders the thermal energy carried by the steam is turned into mechanical energy which is transmitted directly through the rods to the driving wheels. This driving mechanism provides a very flexible and satisfactory transmission. Loss of power is small and change of speed is simple. In this lies one great advantage of the steam locomotive.

The Diesel locomotive is also a self-contained power plant, but the bulk and complications of boiler and superheater are avoided and the fuel liberates its thermal energy directly in the cylinders. Unfortunately, the internal combustion engine must run with a narrow range of speed and is, therefore, not directly adapted to locomotive requirements. To provide the necessary flexibility in speed, complications are necessary. The Diesel cylinders drive an electric generator which transmits electricity to motors geared to the axles.

Comparison of steam and Diesel power is a favorite indoor sport for engineering controversialists. Reams of statistics have been spilled on the subject and more are in prospect. Our present purpose does not require us to be exhaustive or exhausting on the subject. We present only a few facts which seem to be clear cut.

A competent engineering authority responsible for the operation of both Diesel and steam power is on record to the effect that no Diesel locomotive is doing work which cannot be done by a steam locomotive. The Diesel is high in first cost, but has the advantages of requiring little water and a comparatively small bulk of fuel. Waterless operation is of advantage in desert country. Conversion of thermal energy into mechanical work is effected with high efficiency so that the weight of fuel to be carried is small.

The unit cost of Diesel fuel oil is high, but because of the high thermal efficiency the fuel cost per drawbar horsepower is not greatly different for the Diesel and the steam locomotive.

Prospects of Oil as Fuel

This relation may be fundamentally affected by war and by post-war developments in the fuel field. The Diesel is necessarily an oil burner and requires a fairly definite grade of distillate. A change in oil conditions which produces a scarcity of this fuel would hamper the Diesel. The steam locomotive burns coal or low-grade oil and no major change is required to convert from one fuel to the other. Our ample coal reserves insure that the steam locomotive will not be starved out of existence in any foreseeable future.

In comparing steam and Diesel locomotives a factor to be considered is availability. The Diesel can be serviced more rapidly and can run a longer distance between refueling so that it is available for a greater number of hours a day. However, availability pays dividends only when traffic conditions enable the locomotive to be used during all the hours that it is available. E. E. Chapman¹ of the Atchison, Topeka &

Santa Fe has pointed out that availability is rather an abstract term as the actual use of both Diesel and steam locomotives is controlled by train schedules.

In New York Central main-line passenger service a steam locomotive handles heavy through trains for the 928-mile run from Harmon, N. Y., to Chicago. Schedules require trains to leave either terminal in the late afternoon and arrive early next morning. That afternoon the run is reversed. The time of layover from morning to evening is determined by the traffic requirements and could not be shortened by mechanical improvements in the locomotive. The steam locomotives in this service make from 20,000 to 24,000 miles a month.

Long Runs by Diesel and Steam

On the Santa Fe, steam and Diesel locomotives handle passenger trains on the 2,226-mile line between Chicago and Los Angeles, Calif. In steam service, locomotives are changed at Kansas City, Mo., while the Diesel runs through. Fourteen engine crews handle the Diesel while the 4-8-2 type steam locomotive on the 1,789-miles from Kansas City to Los Angeles takes twelve crews.

Extended runs of this character are standard practice on the Santa Fe.

Figures given J. M. Nicholson, assistant to vice-president, Atchison, Topeka & Santa Fe, show that in regular service engine runs of over 1,000 miles are scheduled for four trains daily operated by Diesel locomotives and for ten trains daily operated by steam locomotives.² In such work the Diesel locomotives average about 18,500 miles a month with a maximum of about 27,000, while the steam locomotives average about 12,400 miles with a maximum of about 18,600. On the Santa Fe as of November, 1942, Diesel locomotives handled 7 per cent of the gross ton-miles of the system and 13 per cent of the passenger-car miles.

In considering these figures it should be borne in mind that the Diesel is handling preferred trains and that helper service on heavy grades and protection service against breakdowns is provided by steam locomotives.

In many cases efficient operation is provided by dual-purpose locomotives which can handle both passenger and freight service. An example is given by the 4,000-hp. Diesel-electric locomotives on the New York, New Haven & Hartford. These make two round trips between Boston, Mass., and New Haven, Conn., daily, one trip in passenger and the other in freight service. The daily run of four times 157 miles is 628 miles and the monthly mileage is about 15,000.

An excellent example of the usability of steam locomotives is given by the heavy 2-8-8-2 compound Mallets of the Norfolk & Western. Thirty-five of these are operated in a pool out of an enginehouse at Shaffer's Crossing, Roanoke, Va. The average time required to service and refuel these engines between trips in December, 1940, was 3¾ hrs. at Roanoke, which is the maintenance point for these locomotives. At the other end of their runs the time for servicing varied from 1 hr. 6 min. to 3 hrs. 55 min. with an average of 2 hrs. 45 min.³ These figures represent the motive-power turning time which is the time the locomotive is out of service because of actual servicing

¹ See Steam vs. Diesel-Electric Power, *Railway Age* July 26, 1941, page 149.

² See How to Obtain More Intensive Use of Power, *Railway Age*, November 28, 1942, page 879.

³ See Freight Motive Power on the Norfolk & Western, *Railway Age*, July 5, 1941, page 26, for details of operating performance of these locomotives.

Table I—Representative Locomotives Now in Service

STEAM LOCOMOTIVES					
Road	Type	Diameter drivers, in.	Weight on drivers, lb.		
Union Pacific	4-8-8-4	68	540,000		
Southern Pacific	4-8-8-2	63½	530,000		
Norfolk & Western	2-8-8-2	57	530,000		
Chesapeake & Ohio	2-6-6-6	67	470,000		
Union Pacific	4-6-6-4	69	403,000		
Norfolk & Western	2-6-6-4	70	400,000		
Atchison, Topeka & Santa Fe	2-10-4	74	372,000		
Chesapeake & Ohio	2-10-4	69	373,000		
Atchison, Topeka & Santa Fe	4-8-4	80	286,000		
Pennsylvania	4-8-2	72	271,000		
Delaware & Hudson	4-8-4	75	270,000		
New York Central	4-8-2	72	266,000		
Atchison, Topeka & Santa Fe	4-6-4	84	213,000		
New York Central	4-6-4	79	202,000		

DIESEL-ELECTRIC LOCOMOTIVES					
Road	Type	Diameter drivers, in.	Weight on drivers, lb.	Serv-ice	Trucks per unit
Atchison, Topeka & Santa Fe	2-unit	36	417,000	Pass.	4,000 2 6-wheel
Atchison, Topeka & Santa Fe	4-unit	40	924,000	Frt.	5,400 2 4-wheel
Chicago, Milwaukee, St. Paul & Pacific	2-unit	40	448,000	Pass.	4,000 2 6-wheel
New York, New Haven & Hartford	2-unit	40	461,000	Gen.	4,000 2 6-wheel

requirements. The total time between runs depends also on train schedules, demand for power, and the availability of crews.

Characteristics of Typical Locomotives

Passing from performance to design, Table I has been drawn up to show a number of representative locomotives which are handling war traffic. Table II shows three novel designs recently put into service which will undoubtedly influence the future.

Table I includes two groups of four-cylinder Mallet articulated locomotives with, respectively, four and three driving axles in a set. In the rigid-frame locomotives there are three groups of two-cylinder locomotives having, respectively, five, four, and three driving axles. In each group the various railroads differ somewhat in their choice of leading and trailing truck arrangement.

In grouping the locomotives they have been separated according to the number of driving wheels, but no attempt is made to divide them into freight and passenger service. No such division is practicable. The six-coupled locomotives—the 4-6-2 and the 4-6-4 type,—are specifically designed for passenger, but a large proportion of the heavier locomotives from the eight-coupled—4-8-4 type—up to the double eight-coupled articulated Mallets are designed and used both for freight and passenger service. The Norfolk & Western 2-6-6-4 engines make up to 65 miles an hour, and the Southern Pacific 4-8-8-2 locomotives with 63½-in. drivers are reported to be capable of running 80 miles an hour.

Attention is called to the usefulness of the 4-8-4 type for heavy passenger or fast freight service. With driving wheels 75 in. in diameter, this locomotive can develop a tractive force which will fully utilize the weight on drivers and at the same time can make passenger service speeds without an unduly high r.p.m. Present practice shows that the old idea that a low-wheel engine was to be preferred for freight service is obsolete and should be discarded. A small driving-wheel diameter has the minor advantages of less weight, particularly in the unsprung parts, and with a given stroke a better leverage for changing piston thrust into tractive force. These are much more than offset in a high-wheel engine by the lowered r.p.m. at a given speed in miles per hour and in the better opportunity for correct counterbalancing. Much is to be gained by making driving

wheels of ample diameter for all classes of locomotives.

Returning to Table I, it is seen that in spite of the apparent diversity the locomotives follow a fairly definite and uniform pattern. Although designers may express their personalities, the logic of the engineering requirements is inescapable. The load on a driving axle ranges up to about 75,000 lb., varying according to the road structure and the restrictions provided by the chief engineer. The number of driving axles is chosen to meet the tractive force desired, and when more than five axles are to be driven, they are split into two groups with two pairs of cylinders and an articulated frame. The general tendency is to use a four-wheel trailing truck to provide carrying capacity for a large firebox and boiler. Exceptional boiler capacity is provided in the C. & O. locomotive by the use of a six-wheel trailing truck.

Driving wheels range in diameter from 57 to 70 in. in the multi-axle articulated groups: from 69 to 74 in the ten-coupled; 72 to 80 in the eight-coupled, and 79 to 84 in the six-coupled group. With a driving-axle load of about 68,000 lb. and a maximum tractive force of about one quarter of this, say 17,000 lb. per driving axle, the locomotives range in tractive force from about 51,000 to 136,000 lb.

Table I lists four typical Diesel-electric locomotives. One freight locomotive rated at 5,400 hp. is composed of four units, each with two four-wheel trucks with all axles driven. Three 4,000-hp. two-unit passenger or general purpose locomotives are listed. They have two six-wheel trucks, in each of which the center axle is idle and the outer axles are driven. One passenger locomotive has 36-in. wheels; the other three engines all have 40-in. wheels. All four locomotives have about 50,000 lb. on each axle. Weight on drivers ranges from 417,000 to 461,000 lb. in the passenger up to 924,000 lb. in the freight.

Performance Under Varying Speeds

It will be noted that the weight on driving wheels and, consequently, the maximum tractive force is high in relation to total weight if compared to that of the steam locomotives. This is accounted for by the fact that the characteristics of the Diesel engine with its relatively constant speed forces the use of electric power transmission. Relatively small motors are used and are applied to a larger proportion of axles, counting engine and tender, than would normally be coupled if rods were used. Rapid acceleration at slow speeds is obtained, but this advantage may be more than offset by the limit to the horsepower at high speeds set by the electric motors. The steam locomotive has greater flexibility in overload capacity.

Table II—Three Recent Pennsylvania Locomotives

Type	Diameter drivers, in.	Weight on drivers, lb.
4-6-4-4	77	355,000
6-4-4-6	84	281,000
4-4-4-4	80	268,000

Table II lists three novel locomotive designs put into service by the Pennsylvania recently. All are rigid-frame locomotives with two pairs of cylinders driving two groups of driving wheels. This avoids the high machine friction with four and five pairs of rod-coupled wheels and produces a free-running engine. The 4-6-4-4 engine provides five pairs of driving axles for

(Continued on page 564)

How Present Events Set Course For *POST-WAR RAILROADING**

Railroads are paying out in dividends only 22 per cent of earnings available for such payment—By this absence of generosity to owners, the roads may have a billion in cash when the war ends, despite colossal taxes and refusal of treasury to permit adequate charges to maintenance—Such a sum will help readjustment to peace conditions and carriers are studying prospects exhaustively, to make their action conform to, and put to use, the controlling circumstances

By R. V. Fletcher

*Vice-President and General Counsel, A.A.R., and
Chairman, Railroad Committee for the
Study of Transportation*

IN the calendar year 1942, the railroads had gross revenues of nearly \$7½ billions; they disbursed more than \$4½ billions in operating expenses; they paid to the federal, state and local governments nearly \$1,200 millions in taxes; they emerged from the year's operations with nearly \$1½ billions in net railway operating income, a figure that represents their earnings before the payment of fixed charges, consisting mainly of rentals and interest on indebtedness. In that year, fixed charges amounted to approximately \$660 millions, so that, taking into account a relatively small amount of other income, there remained in the treasuries of Class I railroads about \$900 millions available for dividends, reduction of debt, reserves and moneys which could be used for improvements to property. The railroads used, for the payment of dividends, no more than \$200 millions of this available sum, leaving in the neighborhood of \$700 millions for purposes which have a direct bearing upon the all important matter of railroad credit.

According to a recent announcement of the Interstate Commerce Commission, Class I railroads in 1942 reduced their interest-bearing debt by about \$325 millions, or about 3¾ per cent of the total debt outstanding. In part, this desirable development was made possible by a change in the tax law, which no longer penalizes a program of debt reduction by treating as taxable income the difference between par value and the purchase price of acquired securities. It is particularly gratifying to note that the indebtedness of the railroads to the government has been steadily reduced. As of December 31, 1942, the railroad debt to the Reconstruction Finance Corporation,

which at one time stood at \$836 millions, had been reduced to \$402 millions. By far the greater part of amounts still due the Corporation consists of loans to railroads undergoing reorganization or lately emerged from reorganization, in which cases the debt to the R. F. C. is under control of the Commission and the courts. The process of liquidating the railroad debt to the government has gone steadily forward in the current year.

Looking at the 1943 figures of revenue and expenses, we find that revenues have increased appreciably over the corresponding period of last year, but expenses and taxes have likewise increased in the same or greater proportions. Comparing the first six months of this year with the same period of 1942, revenues have gone up 32½ per cent, operating expenses 22 per cent and taxes 87½ per cent. Federal income taxes alone have increased 140 per cent. It would appear now as if the railroad tax bill for 1943 may run as high as \$1¼ billions. The Interstate Commerce Commission saw proper to reduce the freight rate level, effective May 15, 1943, by some 5 per cent, and this reduction, coupled with wage increases which are in sight, will have a tendency to reduce railroad net income for the balance of the year and appreciably affect the total for 1943.

In comparison with the experience of the railroads for the past fifteen years, the outlook is not discouraging. The net operating income for 1942 of \$1,484 millions is greater than the figure for 1929 by about \$233 millions. And compared with years like 1932 and 1933, those who are interested in railroad credit find much that inspires hope. The operating ratio in 1942 was 61.63, as against 71.76 in 1929 and a high of 76.97 in 1931, a year in which the railroads were mindful of exhortations from high quarters that there should be no curtailment of expenditures.

We have hundreds of railroads, large and small, and each has its distinctive financial structure, its own financial problems and its own policy. In fact, when we speak loosely of "railroad credit," as if it were something of universal import, we tend to mislead. Each railroad is a separate corporate entity, with its record of successes and failures, in common with other business enterprises. Some railroads are prosperous and have good credit; others are poor earners and have poor credit. The same is true of merchants, manufacturers and workers.

Railroad Stocks Priced from 1 to 181

Looking at the transactions on the New York Stock Exchange, as quoted in the New York Times for September 8 of this year, it appears that the Norfolk & Western quotation of 181¼ is the highest on the list, not merely of railroads but of all industrial stocks as well. The same scrutiny of the list discloses that the lowest quotation, 1, applies to a railroad. This wide range of railroad stock values, depending, in part at least upon the ability and inclination to pay dividends, illustrates the unwisdom of making general statements as to railroad credit and financial policies as if the railroads were but a single enterprise.

* From an address at Chicago on October 5 before the Financial Section of the American Life Congress.



But while any statement as to dividend policies must be safeguarded by the considerations just mentioned, yet some general observations may safely be indulged in. The conservative policy of the roads in 1942, evidenced by the use in paying dividends of only 22 per cent of revenue available for that purpose, is a strong indication of tendencies which are likely to continue. Numerous considerations support this view.

In the first place, the Interstate Commerce Commission is convinced that the railroads should be sparing of dividends at this time, when fixed charges are relatively heavy and when there is such obvious need for setting up generous reserves. This feeling on the part of the Commission was evidenced by the demand made upon carriers when the latest general rate case was being considered for a statement as to whether certain revenues might appropriately be earmarked for debt reduction and betterment purposes. Statements, official and unofficial, emanating from the Commission furnish indubitable proof of this attitude. This known policy of the Commission, holding in its hands the very life of the industry, must act as a strong deterrent against a policy of liberal dividends, even when fairly earned.

Larger Dividends Desirable, But Not Now

Again, even without hints from the Interstate Commerce Commission, the managements of the railroads would be slow to deplete their cash resources by the payment of generous dividends at a time like this, which fairly bristles with difficulties. This is not to say that there is anything immoral in paying reasonable dividends to the hard-pressed, often unfortunate shareholders, who have for so long been almost wholly forgotten. I hope we shall again see the day when fair dividends to those who have risked their capital in this essential enterprise will be the rule rather than the exception.

But, now, when the railroads are accumulating a huge volume of deferred maintenance, when taxes have risen to unprecedented levels, when no one can foretell the end of the war and few will even venture to depict the future, it is certainly incumbent upon these carriers to see that the coming of peace finds them with enough cash to absorb the shock of changed economic conditions. One prominent railroad president, the head of a great system, said to me some months ago that he hoped his road would be able to emerge from the war with a hundred million dollars in cash. If this policy prevails throughout the industry, and I think it does, the railroads, turning their faces to the post-war world, should have in their strong boxes more than a billion dollars, with no bank debts and no short-term maturities.

The question naturally comes to the surface: What use will the railroads make of this large amount of cash? Let me say, however, that the amount is not so large when we remember that the total operating revenues of the Class I roads for 1942 was \$7½ billions. We cannot say that a cash balance of less than one-seventh of a year's revenues is excessive.

The railroads will have no trouble in finding useful ways in which to spend their money. In the first place, there is the matter of deferred maintenance. The railroad plant has been driven harder than ever before to take care of the demands made upon it by the necessities of war. Equipment that should have been retired and other equipment that should have been shopped for extensive repairs have perforce been kept in service. The rail renewal programs of many roads have lagged by reason of the scarcity of manpower and the inability to secure materials.

A recent survey of the situation made carefully by the

Association of American Railroads, indicates that there is probably \$250 millions of annual deferred maintenance on the Class I railroads of the country, on roadway and structures alone. This figure represents the amount of money that should have been spent on roadway in one year alone, leaving equipment entirely out of the picture. In other words, if the roads could have secured the men and materials essential to the job, they would have spent in this year a quarter of a billion dollars on track, buildings, bridges, signals and the like. What amount should have been spent on equipment, we have at this time no means for making an estimate. We know that the amount is large. This deferred maintenance will have to be made up at some time and in some way. It may be that a goodly portion of whatever cash reserves may be on hand when the Axis powers collapse must be used to restore the plant to prime condition.

The railroads are making an earnest effort to convince the Congress that the present apparently large earnings of the roads are not true earnings but to a certain degree fictitious and misleading. The cost of maintaining the property is an operating expense, and for tax purposes deductible from income. Under the law as it stands now, as interpreted by the Bureau of Internal Revenue, there can be no deduction of this character unless the money is actually spent. There is some room for hope that the Congress will accord to the railroads and possibly to other industrial groups the privilege of setting up these needed reserves without a prohibitive tax penalty. As the law stands now, in the case of many railroads, in order to lay aside a dollar for a rainy day, they must set aside \$5.26, the average of \$4.26 representing the amount of taxes. If Congress can be persuaded to treat this subject realistically, the necessity for setting up large additional reserves would be less urgent.

Aside from the need for accumulating funds to bring existing facilities up to standard, the railroads will certainly confront the necessity of substituting for much of their present freight car equipment, cars constructed of lighter materials, so that the dead weight of freight trains will be reduced, thereby making it possible to use a greater amount of tractive effort in moving revenue tonnage. Eventually, we hope that the great majority of freight cars will be constructed of light-weight metals and alloys, at no sacrifice of strength and with substantial additions to capacity. Again, there is under study the question of the relative merits of steam, Diesel and electric power as types of locomotives. The changes which intelligent research may find to be necessary, both as to locomotives and cars, will call for the expenditure of vast sums of money, if the railroads are to hold their own in a fiercely competitive economy.

Saturated Market for Equipment Trusts?

Ordinarily, a great part of railroad equipment is financed through the issue of trust certificates, for which there has generally been a ready market. However, if the railroads are to enter upon an extensive program of replacing old equipment with new, some other method of financing may be necessary. Obviously, the market for equipment trust certificates has a definite saturation point.

The period immediately following the conclusion of hostilities will be a difficult one, as all transition periods invariably are. In that transition period, railroads should be in funds to serve as a shock absorber as the character of traffic undergoes a radical transformation. We are likely to find ourselves at the close of the war with

an increased wage scale that will be difficult to adjust downward. In the lull in industrial activity that will likely follow the cessation of hostilities, railroads will find their traffic sensibly diminished, while it will take time to adjust their expenses. Manifestly, the roads should be in funds to meet so critical a situation.

Never in the thirty-five years of my familiarity with railroad developments have I seen so much intelligent thought being devoted to the future. Practically every railroad company of any size has organized competent research groups, who are working diligently on every phase of every problem that has come to the surface and upon many questions that are still submerged.

The Association of American Railroads, which functions as a general staff for its members, has undertaken the task of co-ordinating and harmonizing these studies for the common benefit of the industry. The Association, a year ago, organized what, for the lack of a better name, is called its Railroad Committee for the Study of Transportation. It is a rather large committee, consisting of operating, traffic, accounting, financial, personnel, law, public relations and other officers with executive duties. It has organized some 15 subcommittees and employed a staff of full-time research analysts and experts for the intensive study of every aspect of railroad operation.

Its principal function is to ascertain the basic facts that must be known and considered before sound policies can be adopted. The Committee is not content with a consideration of railroad operations alone; it has undertaken to explore the field occupied by its competitors on the highways, the waterways and in the air. It is endeavoring to understand the transportation situation as a whole, and to reach some sound conclusions as to the place railroads will occupy in the economy that stretches out before us. To collect information of this character, it has been deemed desirable to establish field offices in various parts of the country, with qualified men in charge, whose job it is to contact those responsible for production, with a view to developing just what may be expected in the domain of production and distribution.

Broad Search for Technical Betterment

In the all-important matter of technological improvements, the railroads are not unmindful of their obligation to leave no stone unturned to improve their operating methods and the tools with which they work. In addition to the study of technological questions being currently pursued by the individual railroads, by equipment manufacturers and by the engineering schools throughout the country, the Association of American Railroads has for years maintained an Engineering and a Mechanical Division, supervised by experienced railroad chief engineers and chief mechanical officers, each with a staff of full-time experts, who are constantly testing materials, devices and theories, all bearing upon improving the service, both as to efficiency and economy. In addition to these activities, the Association has recently authorized the creation of a new department, which may be called the Department of Technical Research, under the direction of a Director, whose first task will be to organize a competent staff to give attention to problems in the field of basic or fundamental research.

To me it is a source of some gratification that I am connected with a transportation industry that receives no subsidies from government and asks for none. It stands alone in this respect. By reason of the fact that its competitors, other than the pipe lines, are heavily sub-

sidized, it has been thought by many that railroads cannot hold their own in the competitive struggle that will follow the coming of peace. The simplest considerations of justice and fairness demand equality in respect to this matter of subsidies. The railroads much prefer that this equality be brought about by the withdrawal of all subsidies, so that there may be a fair fight on equal terms, if the policy of uncontrolled competition is to prevail. Under such conditions the railroads need not fear the outcome.

On the other hand, if saner counsels are heeded and transportation companies are permitted to function, with the right to move the traffic by any method of transportation which the shipper desires, the railroads may well hope to take the leading role. In any structure of society where the free enterprise system predominates, their methods and ideals will surely lead to success.

Motive Power—Wartime and After

(Continued from page 561)

freight service. The 6-4-4-6 locomotive was exhibited at the New York World's Fair. With four pairs of driving wheels 84 in. in diameter coupled two and two and an exceptionally large boiler, it is designed to handle heavy passenger trains at high speeds. The 4-4-4-4 locomotive has also four driving axles coupled in groups of two each. It is equipped with the Franklin steam distribution and poppet valves and has shown high efficiency in service.

In trying to look into the future, I can do no better than call attention to some bold predictions made at the joint meeting of the American Society of Mechanical Engineers and the Pacific Railway Club in Los Angeles on June 15 of this year by Morris P. Taylor, assistant mechanical engineer, Southern Pacific.⁴ He called attention to a possible shift in the relative supply of coal and oil for fuel and to the increased amount of cheap electric power that may be available. These are factors that may affect seriously the availability of the various forms of motive power.

Dealing with locomotives and cars, Mr. Taylor listed many possible developments. Some of these are already taking shape. In the case of the steam locomotive, very careful consideration is being given to developments which will maintain its fundamental advantages and obtain higher efficiency and still greater usefulness.

Higher steam pressures and temperatures to obtain better thermal efficiency are in the offing. The present top pressure of 300 lb. per sq. in. is about the maximum that can be carried with the conventional type of fire-tube locomotive boiler. Water-tube boilers for pressures up to 600 or 800 lb. per sq. in. are already on drawing boards and promise the advantages of lighter weight and greater safety. The opportunities offered by this better steam will be taken advantage of by better utilization of the steam in cylinders or turbines. These things are definitely approaching.

Possibilities also to be considered are the combustion-gas turbine locomotive, one of which has been built in Switzerland, and still further over the horizon is the possibility of a combined steam and mercury turbine locomotive which would cut water consumption in half and reduce greatly the fuel cost. These things may be termed visionary at present, but we have it on the highest authority that "without vision, the spirit perisheth."

⁴ An abstract of Mr. Taylor's paper appears on page 242 of the August 7, 1943, *Railway Age*.

What People Think About the Railroads

THE third annual sampling, on scientific principles, of the state of public opinion toward the railroads has recently been completed by the Opinion Research Corporation of Princeton, N. J., whose report reveals, not only current attitudes toward the carriers, but—by comparison with previous samplings—discloses temporal trends in opinion.

An overwhelming majority of Americans (89 per cent of the total sample of 2,515) believe that the railroads "have done a good job during the war." This compares with 82 per cent who held this view last year, and 56 per cent back in 1941 who thought the railroads had done a good job in preparing for the war. About nine-tenths of the sample believe the railroads are doing their best to give good war-time service, and a majority are of opinion that freight is being handled without unreasonable delay. The oil shortage is not being blamed on the railroads.

There has been a large increase (from 48 per cent of recent travelers last year to 74 per cent this year) who have heard complaints regarding passenger service, but there is scarcely any tendency to blame railroad managements for this condition. In 1943, only 18 per cent of the public favor government operation of the railroads. Last year, 33 per cent supported this course—and, back in 1941, 50 per cent favored government operation in event of war. The dwindling minority who favor government operation do not, however, accuse the carriers of inefficiency—but appear to base their advocacy solely on a penchant for "centralized control." Higher than the 18 per cent average of those who favor government operation are the lower income groups (27 per cent), young people (26 per cent), dwellers in large cities (24 per cent), and Southerners (20 per cent).

Most of the 89 per cent who believe the carriers have done a good job give as the reason for their belief the fact of efficient handling of war materials and troop movements—very few refer to the carriers' spectacular accomplishments in the movement of oil. The railroads escape with no reputation for profiteering and with very little complaint on the level of rates. Most people (63 per cent) expect the railroads to be able to handle all traffic offered to them. About half have heard that the government may ration travel, but only a fourth of this number believe such a move to be necessary.

Only 7 per cent of those questioned look for government ownership of the railroads following the war, and a majority see modernization of trains as the principal means by which railroad travel patronage may be maintained in peace-time. A majority are opposed to any government assistance to any form of transportation after the war, but if such assistance is to be given, 42 per cent would like to see the railroads get it (while only 40 per cent would care to see such aid to air lines, and only 20 per cent to bus lines). Seven out of ten people want to have competition equalized among all agencies of transportation—and their favorite means of bringing this about is to leave the task in the hands of some body, such as the I. C. C., with jurisdiction over all agencies.

Comparative rating, during the past three years, of the importance of the various agencies of transportation in their contribution to the war effort is as follows:

	July 1941	July 1942	July 1943
Railroads most important	68%	83%	90%
Trucks most important	22	13	8
Barges most important	10	4	2

Public awareness that the railroads are the nation's principal freight carrier has also shown a remarkable improvement, as follows:

	July 1941	July 1942	July 1943
Railroads carry most freight	59%	74%	83%
Trucks carry most freight	37	23	14
Barges carry most freight	4	3	3

Seven out of ten people who have opinions on the subject (31 per cent offer no opinion) believe that the railroads have been treated fairly in the past five or ten years, while the remaining three believe they have been treated unfairly. Awareness of unfair treatment of the railroads is highest in the South, and weakest among young people. Approximately 85 per cent of the people believe the railroads are "making a profit"; 13 per cent say they are "breaking even"; and 2 per cent believe they are "losing money." Only 6 per cent are of the opinion that they are making "too much money."

Over the last ten years, 39 per cent believe the carriers have "made a profit," 27 per cent believe they have "broken even," and 34 per cent believe they have "lost money." Far Westerners (54 per cent) and young people (52 per cent) lead all Americans in their conviction that the railroads have consistently made a profit during the past decade.

The research workers who made this survey note several points which will bear watching as far as future public understanding is concerned, which may be summarized as follows:

1. Travel inconveniences are now blamed on war-time congestion, but would be laid upon the railroads if congestion should decrease without immediate and commensurate amelioration in service; also restrictions on non-essential travel might bring ill-will to the carriers.
2. Pro-government-operation sentiment seems to accompany lack of appreciation of the railroads' superior performance; hence deterioration in service would probably bring a rapid rise in pro-government-operation opinion.
3. Of young people, 63 per cent would travel by plane if rates equaled those of the railroads (the percentage of the total public which feels this way is only 36 per cent). In addition, the principal asset of the railways as against planes is their greater safety record, a condition which could be affected greatly by improved safety in air travel.
4. The public believes that the railroads can, not just maintain, but actually increase, travel volume, by modernizing trains and reducing fares.
5. Of those questioned this year, 39 per cent of those who were critical of railroad employees, cited rudeness as their cause of complaint—as compared to only 16 per cent last year.
6. The public is almost totally unconscious of the important contribution the railroads have made to the relief of the oil shortage.
7. Almost two-thirds of the public believe that freight rates are an important factor in the selling price of goods.
8. A majority are opposed to government aid to any agency of transportation following the war—but only 27 per cent say that "the government should have a more favorable attitude toward the railroads"; while only 6 per cent say "the government has helped others—give the railroads a break."
9. Young people are the least appreciative of railroad performance and are the most critical of railroad policies. Other segments whose views are less favorable than the average are the Far West, the South, women, and the lower income groups.

A 44-Tonner Turns in Work Report

Practicality of Diesel - electric for a one - locomotive railroad demonstrated by the M. & I. B. & B.

By A. A. Lampert

Superintendent, Missouri & Illinois Bridge & Belt

THE Alton Bridge over the Mississippi River is operated by the Missouri & Illinois Bridge & Belt Railroad. This road is three miles long extending from Alton, Ill., where it connects with the Illinois Terminal, the Alton, and the New York Central, to the Burlington yards at West Alton, Mo., where it connects with the Chicago, Burlington & Quincy, and the Missouri-Kansas-Texas. Including trackage rights, it operates a total line of 3.34 miles. The rail weight is 85 and 100 lb. It also supplies transfer service between these lines as well as trackage for the C. B. & Q. freight trains between East St. Louis, Ill., and the west.

Prior to 1941 the M. & I. B. & B. used a 75-ton steam locomotive for all switching and transfer service. It became necessary, however, either to make extensive repairs or to replace this engine with new power. An investigation and study in March, 1941, resulted in the selection of a General Electric 44-ton, 380-hp. Diesel-

electric locomotive which replaced the steam unit in August, 1941.

This 44-ton locomotive is equipped with two Caterpillar D-17,000, 190-hp., 1,000-r. p. m. eight-cylinder Diesel engines with electric drive to each of the four axles, and geared for a maximum speed of 35 m. p. h. It has a fuel tank capacity of 250 gal., sufficient for about 50 hours of service without refueling. This is equivalent to four eight-hour days of uninterrupted service on this railroad. (For a detailed description see *Railway Age*, November 23, 1940.)

This 44-tonner has an excellent performance record and is doing more work, with increased war traffic, than was handled by the 75-ton steam switcher. In the daily operation the Diesel goes into the Burlington yards at West Alton and switches the M. & I. B. & B. cars out of those stored with other cars. It then transfers this train over the bridge to the Alton connection. In turn, it transfers cars from Alton to West Alton. Three, and occasionally four, trips are made daily during the eight-hour shift. The locomotive fits excellently into the requirements, since incoming cars from the several railroads arrive at various times during the day. Train operations are scheduled between eight C. B. & Q.



Interior of the Enginehouse, Showing the Inspection Pit and Tool Area



The M. & I. B. & B. 44-Ton, 380-Hp. Diesel-Electric Locomotive Moving a Train in Transfer Service

through train movements across the bridge. When steam operation terminated, this road was handling 25 cars per day between six C. B. & Q. train movements. At present the Diesel-electric is handling an average of 50 cars per eight-hour day. The highest number of cars handled in one shift was 125 in five trains. The switching service has increased with the increase in cars.

The cost of Diesel-electric locomotive operation in 1942, when 13,776 cars were handled, shows a saving of \$2.39 per hour, or a 58 per cent reduction over the steam operation of 1940, when only 8,191 cars were handled. The greatest reduction is in the fuel, from \$1.04 per hour for coal to 30.4 cents per hour (average) for the Diesel. This saving would be greater if compared with steam operation on the basis of 1942 traffic and the increased cost of fuel and supplies. This saving does not include the expense of the steam locomotive which it was necessary to lease for an average of thirty days per year, to allow for inspections and repairs to the road's own unit.

The 44-ton Diesel also has a distinct maintenance advantage. Previously, it was necessary to house and repair the steam locomotive in the Illinois Terminal roundhouse, two miles from the yard office. The crew spent at least twenty minutes per day going to and from the engine terminal. It was kept under fire nine to ten hours per day, whereas the Diesel is shut down during non-operating periods which, on occasion, exceeds three hours in an eight-hour shift. With the Diesel and its light, easily-handled parts, all repairs (including Class I overhaul) are now handled in the M. & I. B. & B. enginehouse. The locomotive is also more readily available since it is housed on the railroad property in the enginehouse which was erected at the east end of the bridge.

The enginehouse is a concrete block building, 47 ft. by 18 ft. and 16 ft. high, inside dimensions, costing approximately \$4,000. A pit 44 ft. long is provided. The floor is concrete with two jacking-block spaces. The building was designed by H. Austill, chief engineer, Terminal Railroad Association of St. Louis. In addition to the locomotive equipment, the enginehouse is used to store maintenance of way tools.

During the two years of operation, the Diesel has

not been out of service. All minor repairs and inspections are done on Sunday when it is not working. The locomotive has met expectations in every way and, in addition to the direct savings, has created a favorable impression with both the operating personnel and the management.

Communications . . .

Now Is a Good Time To Cultivate Courtesy

AMARILLO, TEX.

TO THE EDITOR:

Recently there have appeared in several Southwestern daily newspapers, articles expressing views of business and civic leaders on post-war planning—plans for the betterment of their respective communities, and meeting the unemployment problem that the majority feel that we will face. I have read these comments with the thought in mind of just how the post-war period is going to affect our railroads.

We in railroading are aware of the big job that is before us at present, but I sometimes wonder if the majority of railroad men have given a thought to what the post-war era will mean to the carriers, and consequently their employees. We all know that before Pearl Harbor, trucks and buses had made a deep inroad on freight and passenger revenues—and in some cases, on business that had always been generally conceded railway business. With the post-war period, we know that we are going to have to deal with the stiffest competition that the railroads have faced in history. We will not only have motor transportation to compete with, but air and greatly improved barge lines are going to have a say in the division of traffic.

With that thought in mind, I do not believe there is a more opportune time for railroad management—especially division of officers—to stress the idea of courtesy to patrons, by employees. A discourteous employee can give his road a "black eye" that can and will have serious results, not only by losing the good will of the patron, but by his advertising the fact of his ill treatment at the hands of the employee.

We that are familiar with conditions at present, know that it is a trying problem at times, what with the congested yards, crowded passenger trains, and a thousand other things to try

one's nerves, to give a civil answer to some of the questions that are asked each day by shippers and travelers alike. But if we would place ourselves in the patron's shoes, so to speak, I am sure that we would realize that the question he has asked is as important, and means as much to him, as getting number three track clear so number 43 can get in the yard.

But I have heard passenger conductors, when asked by a passenger: "When will this train get to so-and-so?" reply with a sarcastic slur to, "Look at your time-table", or "I don't know". Such treatment is uncalled for, and unnecessary. It leaves a bad taste in the patron's mouth, and an ill-feeling toward that conductor's road. And that passenger is going to advertise the fact to his friends when his journey is completed.

It appears that some conductors have assumed that, because of seniority, they are entitled to, and will retain, their passenger runs, regardless of the decline in passenger revenues.

On the other hand, there are passenger conductors that make business for their roads. Their assistance with their passengers' difficulties, and their friendly advice and information on lay-overs, train changes and destination arrivals create good will, and friendly relations, and likewise the patron advertises the treatment of himself to his friends, and the cycle spreads, and where it is discussed, a friendly feeling is created for that road.

A good portion of the blame for lack of courtesy, where it exists, must rest on division officers, who, after all, have direct contact with employees and—hence—the duty of instructing them in the need for courtesy. I know of an instance, from a previous location, where a railroad family traveling on a pass was treated discourteously by a conductor because they were "dead-heads". However, revenue passengers who witnessed this discourtesy did not know that fact. The superintendent knew of this case, but did nothing to instruct the conductor in more polite behavior.

Looking to the future, it behooves every employee, for his own personal security, to put forth his utmost to retain railroad traffic in the post-war period.

PAUL G. GAITHER,
Yardmaster, C. R. I. & P.

Reserves Required to Permit Definite Post-War Programs

TO THE EDITOR:

NEW YORK

In your issue of September 25 the writer found deep interest in your editorial captioned "Make Post-War Planning Definite", but wonders whether you actually placed your hand on the right spot when asserting that private enterprise, and, more particularly the railroads, undertake to place post-war orders for equipment now. That idea is no doubt sound, and the advice wise, but is it as easy as all that?

In the first place, no one knows what industrial changes may take place in the post-war period and we certainly cannot afford to base our prognostications on wishful thinking of the America of tomorrow—any more than we can indulge in such loose-thinking affecting current conditions and trends with their speed-of-lightning day-to-day revisions and modifications. How then, can we possibly hope to exert almost prophetic powers in visualizing the railroads of tomorrow?

Then we come to the matter of financing, since obviously suppliers of railroad equipment will not entertain proposed order contracts on simple promises of the potential buyer and, then again, how are the railroads or any other large buyers of manufactured products going to finance those purchases under governmental restrictions that prohibit them from laying aside reserves for depreciated or obsolescent plants?

To sum up, is it not high time for our industrial leaders to take the necessary steps to have present federal prohibitions eased or entirely eliminated to enable them to carry out your splendid suggestions? As a step in that direction, should not reserves for depreciation be allowed to follow the only logical purposes of their creation and treated in the nature of operating expenses and not entirely paid out through the processes of income, excess profit and corporation taxes? Is not such a plan the first consideration of definite post-war thinking and planning?

In a word, all the post-war planning in the world becomes futile in the absence of money, and unless we set aside the money for post-war purposes, who is going to provide it? Government subsidy and nothing else. Unless we awaken to a consciousness of this threat to the American system of free enterprise, it is going to be just too late after this war has been fought and won, and we find ourselves in the position of having lost all we fought for—a spectacle not too pleasant to behold even now.

E. B. A.

What to Call Railroad Women

TO THE EDITOR:

SMITHVILLE, TEXAS

Why not WARS, for Women of American Railroads?

K. WILLIAMSON,
Chief Clerk to Superintendent,
Missouri-Kansas-Texas.

PITTSBURGH, PA.

TO THE EDITOR:

How about RAILS? I think the gals would like it. It could mean Railway Aides in Liberty Service.

WESLEY H. LEES.

TO THE EDITOR:

Why not designate the women who are giving such good service on the railroads during the war emergency as ARROWS for American Rail-Road Organizations' Women's Service? This designation, easy to symbolize, is appropriate since arrows are not only weapons, but more often are used to point out something of real importance.

R. S. HAYES,
The Okonite Company.

PRIMOS, PA.

TO THE EDITOR:

I believe the women in different branches of railway service should be given some appropriate name, as they are an auxiliary in helping the railroads to carry on the burdens of war. The name I would suggest is Women's Auxiliary Rail Corps, W. A. R. C.

BENJAMIN C. BURKHOLDER.

Personnel Practices in Need of Modernization

TO THE EDITOR:

SAN DIEGO, CAL.

Ever since I was called into service with the Marine Corps from my position with the C. B. & Q., I have missed my weekly perusal of your magazine. Now, before I shove off, I want to renew my acquaintance with railroads and *Railway Age*. Enclosed is my check to cover a year's subscription.

If I can in a small way influence your policy, take this as being my honest and considered opinion derived from experience:

I know that the railroads must put much more stress on personnel after the war is over. A few railroads are fairly progressive along this line but I think you will agree that most lines have been and still are sadly lacking in this respect. The airlines are far ahead of railroads on personnel management, personnel alertness, and public relations.

I am attached to the air corps and can well visualize the increased competition in freight and passengers from the airlines. My point is this—please "stress" (and I don't mean merely "mention") the importance of a public-conscious railroad personnel. This applies to both management and all employees—particularly when the rail lines get back to normal.

I hope this will be of some benefit to you in your policy and I hope to read about it in my copies of *Railway Age*.

DAVID W. SARGENT, JR.
Capt., U. S. M. C. R.

Railroads-in-War News

Pullman-Standard to Get "VT" Credit

\$60,000,000 of amount government owes company to be freed for reconversion

Up to \$60,000,000 of the amount the government owes the Pullman-Standard Car Manufacturing Company when war contracts are terminated will be advanced to the company under a "VT" credit agreement approved by the War Department on September 29. The agreement was made under provisions recently set up to enable companies engaged in war work to reconvert immediately after the termination of contracts instead of waiting until the amount owed by the government is returned to the contractor through established channels.

Under these provisions, approved by the War and Navy departments, the Maritime Commission and the Federal Reserve Board, a contractor, on termination of a contract, may obtain from banks that part of the termination loan commitment to which he is entitled because of the amounts due him from the government under that contract. Interest on the money so drawn will be paid by the government, since, according to an announcement by the Office of War Information, "the government is indebted to the contractor for the amounts due him under the terminated contract and it would be unfair to the contractor to have him pay interest while he is waiting for the government to pay him."

Under the agreement with Pullman-Standard, a three-year bank credit has been worked out with the co-operation of the War department, the Federal Reserve Bank of Chicago as fiscal agent, the Union Trust Company of Pittsburgh and the Continental Illinois National Bank & Trust Company of Chicago, under which the Pullman-Standard will deal directly with each of several banks participating in the agreement.

"Pullman-Standard is availing itself of this new type of credit," according to C. A. Liddle, president, "to free normal working capital for speedy reconversion to the production of passenger and freight cars, for which we anticipate a big demand once materials for their construction are again available."

Mr. Liddle pointed out that among the advantages of the new "VT" loan arrangement is that which will accrue to the company and its employees through minimizing the interruption of jobs. "Customers also should benefit," he said, "because we should be able quickly to make available the new

New Head for WPB Equipment Division

The War Production Board announced October 1 that Lynne L. White, chief operating officer of the Chicago & North Western, has been appointed director of the W. P. B. Transportation Equipment Division, succeeding Andrew Stevenson, who has been made executive assistant to Hiland G. Batcheller, the W. P. B.'s operations vice-chairman.

rolling stock of which there is a great need.

"The national economy will be served because it will be possible to hasten the application of wartime experience and research developments to new freight and passenger cars which will yield substantial operating economies through the use of lighter weight equipment operated at higher speeds, giving as well, greater comfort to passengers."

The Pullman-Standard "VT" credit arrangement is regarded as a significant acceptance of the program of the procurement agencies and the Federal Reserve System as fiscal agent of the U. S. government to help industry avert a serious threat to the national economy which is involved in the outstanding war contracts. Recent estimates have put the total contracts likely to be outstanding at the close of the war between 75 and 125 million dollars, with more than 20,000,000 workers involved. Delays in providing reconversion funds, it has been feared, might lead to chaotic employment conditions and the new "VT" loan arrangement was set up to help prevent such an outcome.

Troop Movements by Pullman Increase 52 Per Cent

Troop movements in sleeping cars of the Pullman Company totaled 6,536,000 troops during the first eight months of 1943, an increase of 52 per cent compared with the same period of 1942. In July and August, 1,634,000 troops were so handled.

Passenger Traffic Section of ODT Under M. D. Riggs

Director Eastman of the Office of Defense Transportation on September 30 announced the appointment of M. D. Riggs, on leave from his post as assistant general passenger agent of the St. Louis-San Francisco, to succeed J. W. Stevenson as assistant director in charge of the Passenger Section of the O. D. T.'s Division of Traffic Movement. Mr. Stevenson has returned to his position as assistant passenger traffic manager of the Illinois Central.

Critical Six Months Ahead, Says Eastman

Giving reasons for "viewing with alarm," he reflects confidence in outcome

In a report "on the state of the nation, so far as railroad transportation is concerned," Joseph B. Eastman, director of the Office of Defense Transportation, in an address October 6 before the New England Shippers Advisory Board at Boston, Mass., warned that, for several reasons, "the next six months will be a critical period in railroad performance."

Saying that he believed that the railroads, with the help of their customers and employees, will be able to maintain their record of superlative performance until they are "over the hump," Mr. Eastman appealed to his listeners to give the "few ounces of help in reserve" that should put the carriers "over the top" in this critical period immediately ahead.

Among the reasons that the immediate future is so critical, according to the O.D.T. director, are: Equipment shortages, growing pressure on the roads that serve the Pacific coast, the advent of winter, diminishing aid from trucks and buses, manpower shortages, featherbed rules, and the effect of recent accidents.

Mr. Eastman went on to outline three proposals to help the roads through the critical period about which he expressed concern. First, he said, "Upon my return to Washington, I plan at once to call together representatives of the Interstate Commerce Commission and the Association of American Railroads with the emergency committees of the National Association of Shippers Advisory Boards and the National Industrial Traffic League to lay out ways and means of making a 5 per cent betterment in average car loading, in average turn-around time, including loading and unloading, and in all other indices of freight car performance. Given the will to do this, it can be done, notwithstanding the great difficulties."

"One of the ways to do this will be to bring the need home to very shipper and receiver of freight in the country, and to this end I am going to ask the railroads to turn their freight solicitation forces loose on this job. Those forces have been a source of mild irritation and question marks to the shippers for some time now, and this will give them a chance to prove their worth to the war effort. And there are other things that the railroads can do. It will by no means be a campaign for shippers alone."

Mr. Eastman's second proposal was an

extension to other sections of the country of a plan already in operation out of the New England area, under which, in spite of the provisions of General Order O.D.T. No. 1, merchandise loads of less than 10 tons are moved direct to destination or distant gateways, by-passing nearby transfers and utilizing cars that otherwise would move in the same direction empty. He explained that daily car lines have been established from many cities in New England direct to such points as Chicago, St. Louis, Mo., Cleveland and Cincinnati, Ohio, Detroit, Mich., Pittsburgh, Pa., Buffalo, N. Y., Atlanta, Ga., and other transfer points of the southern roads, and even to the extent of routing such cars to the outbound stations in the southern and western cities and so avoid cross-town transfers.

The need for the extension of such a plan will be "much enhanced, if, as I fear, conditions should force the diversion to the rails of some considerable portion of the merchandise which the trucks are now carrying," the speaker added. Government agencies which control the movement of a vast amount of freight are cooperating in this program, he told his listeners.

The third opportunity for helping the railroads through the critical period ahead, Mr. Eastman said, is in avoiding the wastes in transportation resulting from cross-hauling or excessive hauling. "Some savings of significance have been made," he declared, "but the results have not been impressive. Frankly, the industries and the railroads are both afraid of these plans. They regard them as hostile to the free competition which we have always cherished in this country, and suspect some ulterior motive which may persist even after the war is over."

In summing up the reasons why the six months ahead are particularly critical, in his opinion, the speaker took into account the possibility that victory is "just around the corner," in the wake of stronger attacks against the enemy. Granted that this optimistic view should prove to be right, he said, "over here we escape the bombs and the blood, but we cannot escape the drain of such an attack upon our productive capacity or upon the transportation which keeps it in motion. And I call to your minds the fact that in the wake of the attack we shall have many starving populations to help sustain and regenerate. It will be a terrible load to carry."

Of the railroad equipment situation, Mr. Eastman said, "I regard the next six months as the critical period for our domestic transportation, and I may well be in error in limiting it to that number of months. Right now the reports indicate what is called a 'tight' condition in the supply of freight cars of practically every description. In the case of grain, the condition is worse than 'tight,' for the railroads have had the formidable task, not only of moving a bumper crop of spring wheat from the farms of the Northwest, but also of moving at the same time huge quantities of grain from the terminal elevators for human and animal consumption, for the production of alcohol, and for movement overseas."

Turning to the prospects ahead of the

transcontinental lines, the O.D.T. director said, "Instead of relief, nothing can be foreseen for these lines except steadily increasing pressure. Drastic measures have been taken to meet these conditions, but their impact is bound to grow in severity."

"The same will be true of the traffic to the Atlantic ports, with the increasing freedom of movement on the seas, the growth of the merchant marine, and the expansion of the European campaigns."

After referring briefly to the difficulties that severe winter weather might cause, the speaker said, "I hope and pray that this year we may escape lightly from these visitations, for the railroads are protected by very little in the way of reserve capacity."

Shortages of manpower, replacement parts, new vehicles, gasoline, and tires menace the continued performance of the trucks and buses now in service, Mr. Eastman pointed out, and a considerable part of the short-haul l. c. l. freight and local passenger traffic these carriers have been handling is likely soon to be superimposed on the load the railroads already are carrying, he warned. At the same time, he added, "a further grave menace to the railroads lies in their own manpower situation, and also in that of the shippers in the loading and unloading of cars. . . . The fact is self-evident that it is impossible at one and the same time to assign a great part of our best manhood to the fighting services, and to carry on production on a scale never hitherto remotely approached, without a manpower problem which it will require nothing short of genius to solve, if, indeed, anything like a complete solution is possible."

While repeating his view that the effect of featherbed rules on railroad manpower is not of large importance, since that effect "is more on pay than on work," Mr. Eastman remarked that, "Whatever may be the case in peacetime, there is no place for rules which waste manpower under present war conditions. I have been quite frank with all transportation employees as to that, have solicited their aid in improving the situation with some success, and have also proposed other and more drastic steps which they do not like."

Of train accidents, Mr. Eastman said, "It is undoubtedly true that with the present tremendous volume of traffic and the high pressure under which the railroads are operating the accident hazard is somewhat increased. But nothing within my knowledge leads me to believe that any state of negligence or carelessness has yet developed on the part of either the managements or the men, or that the equipment is not generally being maintained in condition for safe operation."

"Much has been said about high speed. Let me say that at my request the railroads went over their passenger train running time in the latter part of 1942. The result was a large number of schedule changes, all of which resulted in slower running times. . . . However, we are now re-examining this matter with the railroads all over the country. It is not a matter which can be dealt with arbitrarily

or peremptorily, for the changing of railroad schedules is full of complications. . . . Railroad travel may still be regarded as safe—and certainly far safer than highway travel."

Fair Employment Committee Chairman Resigns

Msgr. Francis J. Haas, chairman of the President's Committee on Fair Employment Practices, has resigned to become bishop of Grand Rapids, Mich. Msgr. Haas presided at the committee's recent public hearings on charges against railroads and railroad unions of alleged discrimination in employment because of race or color.

The hearings were held in Washington, D. C., from September 15 to 18, and it was stated at the committee's offices this week that the committee was scheduled to hold a meeting on October 18 for further consideration of the railroad cases.

Borrows B. & O.'s Miss Dennis

Otto S. Beyer, director of the Division of Transport Personnel of the Office of Defense Transportation, announced on September 30 that the Baltimore & Ohio had loaned to that division Miss Olive Dennis, engineer of service, to assist in determining more definitely the types of railroad work in which women can be employed satisfactorily.

As a part of a survey for this purpose now under way in the West, where the immediate manpower problem is most serious, Mr. Beyer's statement pointed out, an on-the-ground study will be made on a division of the Chicago, Rock Island & Pacific of the opportunities for the employment of women in offices, shops, engine houses, yards, storehouses, stations, terminals and other facilities. Miss Dennis will bring to this investigation more than 20 years' railroad experience, which began with her employment in the engineering department of the B. & O. after graduation in civil engineering at Cornell University.

S. P. in Joint Action Plan with Truck Operator

Approval of the first wartime joint action plan for the coordination of competitive railroad and motor truck operations was announced October 1 by the Office of Defense Transportation. The plan affects the Southern Pacific and two common carrier truck lines, the railroad's subsidiary, the Pacific Motor Trucking Co., and the Security Truck Line, and applies to the territory between San Francisco, Calif., and Tres Pinos.

The plan provides that the Security line will suspend its l.t.l. services between San Francisco and San Jose, turning over to the Southern Pacific at San Francisco its traffic for line haul movement to San Jose. Pickup and delivery will be performed in San Francisco by the contract draymen employed by the railroad, while Security will continue to perform this service in San Jose. Such freight, however, will continue to move on the truck operator's billing, and it reserves the right to run truckload single shipments between these terminals.

Security Truck Line, on the other hand,

will handle between San Jose and Hollister and Tres Pinos the L.C.I. business of the Southern Pacific, and the operations of the Pacific Motor Trucking Co., between those points will be suspended, except for the movement of single shipments in truck-load lots and handling overflow movements when called upon by the Security line. Pickup and delivery service at Tres Pinos and Hollister will be performed by Security. Southern Pacific traffic to and from Hollister will continue to move on the railroad's billing, however.

This arrangement is expected to result in an annual saving of about 70,000 truck-miles.

Personnel Needs Soar to New High

Total personnel needs of the railroad industry, as reported to the Railroad Retirement Board, soared to 96,361 persons, a new high on September 1. The figure is an increase of 17,432 persons over the shortages reported on August 1, 1943, and an increase of 55,451, compared with December 1, 1942. Of the 17,432 additional employees needed, approximately 15,000 are required by the 30 largest carriers.

During August, the board placed 36,090 persons but high labor turnover, the continuous drain of railroad workers by selective service and the return of students to school have left the railroad industry extremely short of personnel, the report of the board states. The greatest increase in needs occurred in the maintenance of way and structures groups and totaled about 8,000 over August figures. Approximately 7,000 of these are trackmen. The maintenance of equipment and stores and the transportation groups showed substantial increases of approximately 5,000 and 4,000 respectively, during the month.

The greatest need, 23,480 persons, was reported in Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New York and Pennsylvania, while the next largest, 21,505, was in Wisconsin, Michigan, Ohio, Kentucky, Indiana and Illinois. The needs for Washington, Oregon, California, Nevada and Arizona were 17,948; for Kansas, Missouri, New Mexico, Oklahoma, Texas, Arkansas and Louisiana, 13,634; and for the remaining 10 states, 13,492.

The needs as of September 1, 1943, by occupational groups are as follows:

Occupational Group	Needs Number	Per Cent	Surpluses
I Executive, official and professional	198	.2	0
II Clerical	2,037	2.1	0
III Maintenance of equipment and stores ..	27,068	28.1	26
IV Maintenance of way and structures ...	50,329	52.2	153
V Transportation	16,231	16.9	162
VI Miscellaneous	498	.5	29
Totals	96,361	100.	370

I. C. C. Allows Truckers to Use Shortest Routes

Because of an urgent need to expedite the delivery of war materials and other freight, the Interstate Commerce Commission has issued Emergency Order M-3, effective October 1 and terminating December 31, 1944, or earlier if so ordered, authorizing common carriers of property by

motor vehicle to use the most direct available highway route between any two points where they may lawfully render service, provided the specified regular route is less than 110 per cent of the distance over the direct route.

The order further provides that such common carriers may move empty equipment over the most direct available highway between any of the routes lawfully operated.

The order is intended to eliminate the work and expense attending filing and processing individual application for temporary authority in such circumstances, Secretary W. P. Bartel explained. It was emphasized that the emergency order does not authorize service by any carrier at any point not now served, nor does it relieve any carrier from serving any point where service is authorized.

Where the authorized route is more than 110 per cent of the length of the most direct available route, applications for temporary authority to use the direct route still must be filed individually, "because of the competitive situation."

OPA Limits Settlements and Rentals for Road Machinery

A limitation on settlements made between lessors and lessees for the value of construction and road maintenance equipment which has been lost or damaged during a rental period has been established by Amendment No. 12 to Maximum Price Regulation No. 134 (Construction and Road Maintenance Equipment Rental Prices and Charges for Operating and Maintenance or Repair and Rebuilding Services), effective September 30, and issued by the Office of Price Administration September 29.

Adjustable pricing provisions for sales of operating and maintenance, or repair and rebuilding services are also provided and at the same time are made applicable to rental of equipment on a fully operated basis where a combination rate has been approved and to the rental of dump trucks on a fully operated basis. The maximum settlement made between a lessor and a lessee for damages occurring to equipment during the rental period is limited, by the action, to the applicable maximum price established by Maximum Price Regulation 136 (Machines, Parts and Machinery Services) for sale of the equipment or part at the time of damage. The price of leased equipment when new, or its appraised value at the time of entering into the lease, cannot be used as a basis for settling or negotiating damage claims, OPA stated.

Application of the new provision means that if the lessor and lessee agree that the equipment was in condition to qualify as "rebuilt and guaranteed" prior to damage, its value may be settled now at 85 per cent of the maximum sales prices of equivalent new equipment. If the parties cannot agree as to the operating condition of the equipment at the time of damage, its value ordinarily will be settled on the basis of 55 per cent of the ceiling price of equivalent new equipment. The lessor may always elect to apply the alternative "depreciation method" provided by the machinery regula-

tion to determine value if the damaged equipment is of a class for which a depreciation rate has been listed in the latter regulation.

Without the limitation on the amount of settlement for damages to equipment, OPA stated that these settlements might be an indirect means of evading the price ceilings of the machinery regulation and the rental ceilings of Regulation 134.

Claims by lessors for loss of profit due to the destruction of equipment by lessee's negligence, or claims by lessees for personal injuries to personnel due to faulty condition of equipment, are not affected by the limitation.

In addition, the limitation does not apply to settlements made between any of the parties and an insurance company. Adjustments of losses on insurance policies are not subject to price control.

The adjustable pricing provisions permit the quoting, contracting or supplying of operating and rebuilding services, or to furnish equipment on a fully operated basis where a combination rate has been approved, or to furnish dump trucks on a fully operated basis at a price subject to adjustment up to the maximum price in effect at the time such services are performed or such equipment is furnished. It is also provided that a person may supply such services or furnish such equipment at a price to be adjusted upward in accordance with action subsequently taken by OPA where prior authorization by OPA has been obtained.

Finds Rail Safety Record "Still Remarkable"

"Even under present abnormal conditions of record traffic and shortage of equipment and manpower, the safety of travel by rail is still remarkable by any comparison," according to the latest issue of the "Washington Review" published by the Chamber of Commerce of the United States. The statement was a follow-up on an observation to the effect that the coincidence of three recent railroad accidents "has created in the minds of some an apprehension for the future that is not warranted in the light of available statistics."

The item then goes on to quote the figures, pointing out that passenger fatalities, "which averaged around 0.3 per 100 million passenger miles before 1927, had dropped to 0.169 in 1942 and 0.101 in the first seven months of 1943." Also, the Chamber calculated that if figures for "the two major rail disasters of the last two months" be included, "the rate for the year ended September 30 is less than that for a number of the lower traffic years since 1926 and less than any earlier year."

Wage Increase for Puerto Rico Railroaders

Approving the decision of the special panel which investigated the dispute, the National War Labor Board has authorized a 10 per cent wage increase for employees of the government-operated American Railroad Company of Puerto Rico. This wage dispute precipitated the strike which resulted in President Roosevelt's May 13 executive order taking over the line and assigning the Office of Defense Transpor-

tation to operate it on behalf of the government.

The authorized wage increase will amount to \$100,000, and the decision provides that the distribution of that sum be worked out by collective bargaining.

New Regulations for Car and Locomotive Accessories

Definite instructions governing the handling of accessories for railway cars; locomotives; rapid transit and street cars; trolley and motor buses, for the first quarter of 1944 and for subsequent quarters, are contained in a letter dated September 21, from G. M. Cornell, deputy director, Transportation Equipment division, War Production Board, and addressed to all locomotive, railroad car, bus street car, trolley bus, and bus body manufacturers, and to manufacturers of specialties for the foregoing products. The letter (WPBI-918) reads as follows:

"The official CMP class B product list dated May 15, 1943, omits the following

product classifications carried in previous issues of the list: railroad car accessories, railroad locomotive accessories, rapid transit and street railway car accessories, trolley bus and motor bus accessories.

"For the first quarter of 1944 and continuing through subsequent quarters until otherwise advised, the items listed on the attached sheet under each of the above categories will be handled as B products in accordance with the provisions of the Controlled Materials plan and with instructions you have received previously in regard to bills of materials. In accordance with previous instructions, items not specifically listed on the attached sheet, but which are known in the trade as 'car accessories', 'locomotive accessories', 'street car or rapid transit car accessories', or 'trolley bus and motor bus accessories' are *not* classified as B products.

"Instructions contained on form CMP-4B for the fourth quarter specified in paragraph I-d that materials for the manufacture of repair or replacement parts of operating

supplies (not including B products sold as such) should be requested on a separate application form CMP-4B. Despite this instruction many manufacturers filed only one application for both complete B products and repair parts. The form CMP-4B for the first quarter of 1944 contains a similar instruction and it is necessary that applications for the first quarter be prepared accordingly. One form CMP-4B must be filed for material requirements for complete B products and another CMP-4B form must be filed for material requirements for repair parts other than complete B products, whether such parts are to be used to repair A products, B products, or any other products.

"In connection with the items listed under 'Railroad Car Accessories' and under 'Rapid Transit and Street Railway Car Accessories', question has been raised as to the definition of 'couplers and coupling devices'. This item is intended to cover only a complete assembled coupler, including coupler shank, knuckle, and knuckle pin."

The list referred to in the WPB letter follows:

CLASS B-ITEMS

Railroad Car Accessories, not including air brake actuating mechanism

Brake beams, railroad car
Brake shoes, railroad car
Brakes: hand, railroad car
Car seals, railroad equipment
Coupler centering devices: railroad car
Coupler and coupling devices: railroad car
Draft gears and springs: railroad car
Flexible metallic air joints: railroad car
Flexible metallic steam joints: railroad car
Joints, metallic, flexible: air, steam: railroad car

Shoes, brake: railroad car
Side bearings: railroad car
Snubbers, truck spring: railroad car
Springs, truck: railroad car
Truck spring snubbers: railroad car
Truck springs: railroad car
Uncoupling devices: railroad car

Railroad Locomotive Accessories, not including air brake actuating mechanism

Air signal equipment: locomotive
Alarms, low water: locomotive
Bell ringers, locomotive
Blow off cocks and mufflers, railroad
Boiler feed equipment, heaters: checks: locomotive
Boosters, locomotive
Brake shoes, locomotive
Buffers: radial
Checks, boiler feed equipment: locomotive
Circulators, locomotive
Coal pushers, locomotive
Cocks, blow off: locomotive
Compensators and snubbers for driving boxes, locomotive
Cylinder drain, relief, drifting devices: locomotive

Driving box compensators, lubricators, snubbers: locomotives
Fire doors, pneumatic: locomotive
Flange oilers: locomotive
Foam collapsing systems: railroad
Gears: poppet valves, reverse: power operated: locomotive
Headlight equipment, turbo electric: locomotive
Heaters, boiler feed equipment: locomotive
Horns: locomotive
Joints, flexible: air, steam, oil: locomotive
Lateral motion devices: locomotive
Low water alarms: locomotive
Lubricating systems, railroad
Mufflers, blow off: locomotive
Plugs: arch tube, circulation, wash out and boiler drop: locomotive

Poppet valves, reverse gears: locomotive
Sanding equipment, locomotive
Shoes, brake: locomotive
Signal equipment, air: locomotive
Siphons, locomotive
Snubbers and compensators for driving boxes, locomotive
Soot and cinder cleaners, automatic, railroad
Springs, driving: engine truck, trailer truck, tender: railroad
Sprinkler, coal: railroad
Steam dryers: railroad
Steam heat equipment: railroad
Stokers, locomotive
Superheaters, locomotive
Tank water connection controls, locomotive
Throttles: front end, dome: railroad
Universal joints: injector, turret: railroad
Water gauges, columns, guards: railroad

Leaders of the Famed 727th



Some of the Officers of a Renowned Railway Battalion

The 727th Railway Operating Battalion, as noted in last week's issue, was recently cited by General George S. Patton "for exceptional speed and efficiency in operating Sicilian trains under fire"—after having been previously cited in the Tunisian campaign for extremely meritorious service. The above photograph was taken while the 727th was in training at Fort Northeastern on the Southern's Meridian-New Orleans line, and is reproduced here through courtesy of the Southern.

First Row, kneeling, left to right: Lt. J. H. Bowen (student apprentice, So., Cinti.), Lt. V. E. Williams (asst. b. & b. supr., So., L'ville), Lt. (now Capt.) H. C. Mauney (asst. t. m., So., Strasburg, Va.), Lt. L. E. Hatley (mach., Mo. P.)

Second Row: Capt. J. G. Beard (track supr., So., Huntingburg, Ind.), Capt. J. M. Boles (track supr., So., Lexington, Ky.), Lt. Col. Fred W. Okie, commanding officer (supt., So., Birmingham), Major R. C. Moss, Capt. C. H. Anderson (t. m., C. R. I. & P.)

At Top: Capt. C. C. Mullins (track supr., So., Tuscaloosa, Ala.), Lt. R. L. McKinney, Lt. J. R. Stirling (gen. foreman, t. & t. dept., So., Cinti.), Capt. H. H. Wittekind (s. k., S. P.), Lt. A. E. Hackman (chief dispr., U. P.)

Whistles, locomotive
Windows, locomotive cab
Windshields, locomotive cab
Rapid Transit and Street Railway Car Accessories, not including air brake actuating mechanism
Air brakes: rapid transit, street car
Bells, rapid transit: street car
Brake shoes: including magnet track, rapid transit, street car
Car springs: rapid transit, street car
Coupling devices: rapid transit, street car
Current collection equipment: rapid transit, street car
Destination indicators: rapid transit, street car
Door, step parts, controls: rapid transit, street car
Fare collection registering devices: rapid transit, street car
Flange oilers: rapid transit, street car
Headlights and equipment: rapid transit, street car
Heating, ventilating equipment: rapid transit, street car
Horns: rapid transit, street car
Joints, metallic, flexible: air, steam: rapid transit, street car
Lighting, signal system: rapid transit, street car
PCC car trucks, wheels
Sanding equipment: rapid transit
Street car accessories
Whistles: rapid transit, street car
Trolley Bus and Motor Bus Accessories, not including air brake actuating mechanism
Current collection equipment: trolley bus, motor bus
Destination indicators: trolley bus, motor bus
Door, step parts, controls: trolley bus, motor bus
Fare collection registering devices: trolley bus, motor bus
Headlights and equipment: trolley bus, motor bus
Heating, ventilating equipment: trolley bus, motor bus
Lighting, signal systems: trolley bus, motor bus
Springs: trolley bus, motor bus

Railway Scales Standardized to Save More Steel

In order to promote the saving of several thousand tons of steel annually, the War Production Board on September 28 imposed comprehensive standardization measures on the production of large capacity scales used primarily for commercial purposes.

This saving, which represents approximately 25 per cent of the total annual consumption of steel in the scale industry, will be accomplished by reducing, wherever possible, the amount of steel used in the production of such scales. In addition, by permitting production of only a few sizes and models as compared to literally hundreds previously manufactured, it is estimated that the action will (1) increase the productive capacity of the industry about 20 per cent—making facilities available for conversion to ordnance production; (2) effect a substantial saving in the number of units currently required to be carried in inventory; (3) conserve manpower and transportation; and (4) reduce time for deliveries.

The action was taken through the incorporation of eight new schedules under Order L-190 (Scales, Balances and Weights). The schedules impose production restrictions on the following types of scales: railway track scales, motor truck scales, portable beam scales, rolling mill scales, portable dial scales, dials for pendulum type dial scales, self-contained floor scales and built-in floor scales. One important effect of the schedules will be the standardization of industry terminology through the use of standard, descriptive terms in identifying the various types of scales.

The Division of Weights and Measures of the National Bureau of Standards cooperated in the drafting of the new schedules and concurred in the issuance of schedules prohibiting, for the duration, the manu-

facture of scales which meet specifications emphasized and encouraged by the bureau for many years.

It was pointed out that the manufacture of scales using the amounts of materials required by the AREA specifications for motor truck scales is essentially prohibited by the schedules. The primary reason for this is the conservation of materials, and although superior durability will be sacrificed, construction of a greater number of scales for use for the duration will be expedited. Another example of this policy is the prohibition of the use of concrete platforms in new motor truck scales and the requirement that wood be used instead. Since the installation of concrete platforms increases the consumption of steel by 50 per cent, this restriction will make possible a substantial increase in the number of motor truck scales which can be made from the materials available.

Specific provisions of the schedules are summarized below. No exceptions are permitted without specific authorization of WPB. However, a 30-day period is provided for the consumption of stocks of fabricated parts held by individual manufacturers.

Railway Track Scales: No railway track scale can be made unless designed for weigh rails which are either 50, 60 or 72 ft. long. Rated sectional capacities must be either 50, 60, 75, 100, 150 or 200 tons per section. The lever system for each capacity must not exceed AREA specifications. Only four-section scales are permitted.

Motor Truck Scales: Limited to seven specific sizes and capacities. Each manufacturer must restrict himself to his lightest lever system for each size and capacity. No motor truck scales may be built with concrete decks.

Portable Beam Scales: Limited to five specific models, with three types of weigh-beams allowed for each model.

Portable Dial Scales: Only one size permitted for the industry.

Dials: Only those having a reading line with a diameter of 20 in., or between 14 and 15 in. are permitted.

Self-Contained Floor Scales: Only those with skeleton frame, wood box or fulcrum-stand construction allowed.

Built-In Floor Scales: Only those with wood platforms permitted.

Would Increase Tax on Fares from 10 to 25 Per Cent

The Treasury's tax program presented to Congress this week proposes to increase the tax on amounts paid for passenger transportation from the present 10 per cent to 25 per cent. It is estimated that the boost would bring in an additional \$212,700,000 a year.

At the same time, it is proposed to repeal the tax on amounts paid for the transportation of property, which is three per cent except in the case of coal where the rate is four cents per short ton. In this connection, the House this week received from its committee on ways and means a favorable report on H.R. 3338, introduced by Representative Doughton, Democrat of North Carolina, to amend

present provisions of the Internal Revenue Code relating to the freight tax.

The Doughton bill would broaden and clarify the exemptions with respect to government property while removing the existing exemption accorded non-government traffic moving over government-operated transportation agencies such as the Federal Barge Lines and the Alaska Railroad. The latter situation, said the committee report, has not only resulted in a substantial loss of revenue, "but also in an unfair competitive advantage for the government-operated carrier." However, amounts paid to the Post Office Department for the transportation of property would remain exempt.

I. C. C. Service Orders

Service Order No. 156, effective from October 1 to November 15, prohibits the transportation of canned goods in refrigerator cars without a permit issued by an agent of the Interstate Commerce Commission, and suspends for that period tariff provisions applying to such shipments. The prohibition does not apply, however, to such shipments in refrigerator cars moving in westbound transcontinental traffic to points in California, Idaho, Arizona, Nevada or Utah or to such shipments originating in Utah and destined to points in California or Nevada, under the provisions of Service Order No. 104, amended. The use for this purpose of so-called giant refrigerator cars, under Service Order No. 93 or its amendments, is prohibited, on the contrary, by the new order.

Effective October 1, the commission, by Service Order No. 157, directed the Seaboard Air Line not to move from Starke, Fla., to Baldwin and return, for the purpose of weighing, any carload shipments of lime rock handled from Buda, Fla., to Starke, except that not over 10 cars may be moved to and from Baldwin to obtain average weights.

By Amendment No. 1 to Service Order No. 93 the commission has modified the provisions of that order, requiring railroads and the Railway Express Agency to furnish for loading and handle giant refrigerator cars loaded at points in California and Arizona, without regard to ownership, at rates applicable on standard refrigerator car movements of the same commodities, though the load in giant-type cars must exceed by at least 20 per cent the tariff minimum load for standard cars.

Denver, Colo., and North Platte, Neb., have been added to the icing stations where the initial icing of potatoes is limited to three-fourths of bunker capacity by Amendment No. 3 to Service Order No. 145, effective October 1.

Elkins Act Violation

Secretary W. P. Bartel has announced that the Interstate Commerce Commission has been notified that the Western Maryland on September 24 pleaded guilty at Baltimore, Md., to an information on two counts charging that an extension of credit in connection with shipments of wine to Embros Wine & Liquor Co. constituted a concession and discrimination in violation of Section 1 of the Elkins Act. A fine of \$2,000 was paid.

GENERAL NEWS

Non-Ops Blame F.D. For Delay on Raise

The responsibility rests with President, says union leaders' report

"The responsibility for the present situation and additional delay rests with the President of the United States," according to a recent report by executives of unions representing non-operating railroad employees on their efforts to obtain government approval of the understanding which has been reached with management for settlement of the controversy growing out of Economic Stabilization Director Fred M. Vinson's action staying the eight-cents-per-hour increase recommended last May by a National Railway Labor Panel emergency board.

The report took the form of a circular sent to all general chairmen and field officers of the interested unions. Meanwhile, the October 2 issue of "Labor" said the "chiefs of the five transportation brotherhoods" were "fighting mad" over the "insignificant" increase of 32 cents per basic day recommended for operating employees by the emergency board which reported to President Roosevelt on September 25.

"From both groups," the "Labor" article continued, "came reports that railroad workers are literally 'on fire' over the treatment they received, and that unless they get a square deal, strike votes may have to be taken, despite their desire to avoid such a drastic step." The circular sent out by the non-op leaders read in part as follows:

"Since August 7 numerous conferences have been held with government officials, seeking their approval to make the agreement with the carriers effective. These conferences were held while, as we all know, the President was otherwise engaged.

"On Thursday, September 16, a conference was held with the President. He was fully advised, by representatives of the chief executives of the unions, of the general and widespread disappointment and dissatisfaction of the employees because of the long delay and because of the way the government had handled the dispute. After full discussion of the matter an understanding was reached to settle the dispute that day, on a basis acceptable to all 15 chief executives.

"However, on the next day, September 17, the President advised the representatives of the 15 chiefs that, after conference with others in the government, and upon further consideration, he had concluded further action in our case should be held in abeyance until he received the report of the

U. S. Is Financing Highway Program in Mexico

Mexico is engaged in a large highway-building program, last year's outlay being \$35,000—according to a statement by office of the Co-ordinator of Inter-American affairs. The present major road construction effort is to be on "the incompleting link of the inter-American highway between Mexico and the Guatemalan border."

The official statement goes on to say that "because of the formidable task confronting Mexico in completing her part of the inter-American highway, the Export-Import Bank of Washington [i. e., Uncle Sam] late in 1941 provided a credit of \$30,000,000 to Mexico."

emergency board in the wage increase dispute of the five train, engine and yard service organizations and that then both cases be considered and settled.

"There has already been too much delay and this additional delay is very objectionable. However, it must be recognized that under the Railway Labor Act and the Stabilization Act the decision rests with the President. . . . The 15 chiefs will continue their vigorous and determined efforts to secure, at the earliest possible date, a satisfactory and acceptable settlement of the dispute. . . ."

C. P. R. Lake Service Suspends

Because of operating difficulties occasioned by the war, the Canadian Pacific has suspended its Great Lakes rail-and-lake freight service for the balance of the 1943 season. This service normally operates until late November, between New England-New York-Eastern Canada and Chicago-Milwaukee, via Port McNicoll, Ont. It is expected that this service will be resumed with the reopening of navigation in the late spring of 1944.

Santa Fe Issues Pamphlet "The Railroad at War"

In answer to requests from teachers and students for material on wartime transportation suitable for school use, the public relations department of the Atchison, Topeka & Santa Fe has issued a 16-page illustrated pamphlet, entitled "The Railroad at War," which shows the vital part that American railroads are playing in the present crisis. The booklet describes the loading and movement of troop trains, and the preparations made by railroads to handle material for the armed forces.

Pacific Electric Case Is Non-controversial Both management and labor leaders want 13-cent raise approved

Sitting this week in Washington, D. C., for public hearings in the Pacific Electric wage case, President Roosevelt's "special emergency board" found itself considering a non-controversial proceeding insofar as it involves the 13 cents per hour increase recommended last May by the National Railway Labor Panel emergency board to which the case was originally assigned. While representatives of the Brotherhood of Railroad Trainmen put into the record a renewal of their initial demands for a 27 1/4-cent raise, they nevertheless plugged along with management representatives for approval of at least the recommended 13-cent increase which has been cut to three cents by Economic Stabilization Director Fred M. Vinson.

Failure of the B. of R. T. to obtain for the employees something more than this Vinson order authorizes finally resulted in the recent two-day strike. Meanwhile President Roosevelt appointed the "special" board to give the case further consideration. The report of the strike and of the appointment of this new Presidential board appeared in the *Railway Age* of October 2, page 538.

Members of the board are Chairman Elwyn R. Shaw, chief justice of the Supreme Court of Illinois; Richard F. Mitchell, former chief judge of the Supreme Court of Iowa; and Walter C. Clephane, Washington, D. C., attorney. Hearings got under way October 4, and the board is called upon by the executive order creating it to make its report to the President "on or before October 15, 1943." Mr. Vinson is required to pass upon the recommendations within 10 days thereafter.

The P. E. was represented at the hearings by President O. A. Smith and Vice-President and General Counsel F. Karr. W. P. Nutter appeared for the B. of R. T. Presentations of both parties stressed particularly their view that this board should have no difficulty in hurdling the "Little Steel Formula" barrier with a finding that the increase recommended by the original board is necessary for the effective prosecution of the war. It was conceded that such a basis for an increase was not stressed before the original board, but it was pointed out that manpower conditions in the Los Angeles area have changed for the worse since that time. Testimony to the effect that the war effort required the services of the P. E. came from V. V. (Continued on page 579)

\$610 Million Net
Income in 8 Mos.

Net railway operating income
for same period was
\$948,083,694

Class I railroads in the first eight months of this year had an estimated net income, after interest and rentals, of \$610,100,000 as compared with \$465,200,276 in the first eight months of 1942, according to the Bureau of Railway Economics of the Association of American Railroads. The eight-months net railway operating income, before interest and rentals, was \$948,083,694, compared with \$821,238,008 in the corresponding 1942 period.

In the 12 months ended with August, the Class I roads had a rate of return of 5.97 per cent on their property investment, as compared with 4.38 per cent for the 12 months ended with August 31, 1942.

August's estimated net income was \$84,600,000, compared with \$89,243,435 in August, 1942; while the net railway operating income for that month was \$124,561,490 compared with August, 1942's \$135,928,942. "August is the third consecutive month in

months net railway operating income was \$383,457,275 compared with \$343,938,055. Gross in the Eastern District in the eight months totaled \$2,630,106,129 an increase of 20 per cent compared with the same period in 1942, while operating expenses totaled \$1,666,239,955 an increase of 16.5 per cent.

The Eastern district's estimated net income for August was \$37,000,000 compared with \$37,829,420 in August, 1942; net railway operating income amounted to \$52,937,731 compared with \$56,106,315.

Class I roads in the Southern region in the eight months had an estimated net income of \$98,300,000 compared with \$81,478,255 in the same period last year. Their eight-months net railway operating income was \$141,681,082 compared with \$124,424,239. Operating revenues in the Southern region in the eight months totaled \$862,158,499 an increase of 32.5 per cent compared with the same period of 1942, while operating expenses totaled \$485,583,524 an increase of 22.9 per cent.

For August the Southern region roads had an estimated net income of \$10,000,000 compared with \$11,402,758 in August, 1942; net railway operating income amounted to \$15,825,768 compared with \$17,095,378 in August, 1942.

Low Water Cause of
"Century" Accident
Crew aware of defective pump
throttle control before
leaving Syracuse

The immediate cause of the explosion of the boiler of the locomotive hauling the eastbound Twentieth Century Limited on the morning of September 7, which derailed that train east of Canastota, N. Y., was overheating of the crown sheet due to low water, according to the report of the Interstate Commerce Commission, issued October 1. In this accident, a brief account of which was printed on page 429 of the September 11 issue of the *Railway Age*, 11 of the 17 streamline passenger-train cars of which the train consisted were derailed. The engineman, fireman, and a traveling fireman were killed, and 9 mail clerks, 5 Pullman porters, a chef, 3 cooks, and 11 dining-car waiters were seriously injured.

The train left Syracuse, N. Y., at 4:13 a.m., 18 min. late, and had proceeded 22 miles to a point 1.4 miles east of Canastota, N. Y., when the boiler exploded at 4:35 a.m. while the train was moving at an estimated speed of 70 miles an hour. The boiler was torn loose from the running gear, all rivets in the smokebox connection were sheared, and it came to rest 900 ft. forward from the point of the explosion, headed in the opposite direction, nearly upright, and 35 ft. south of the track, which at the scene of the accident is straight and approximately level. Both rails were depressed 2 in. at the point of the explosion. The superheater units remained attached to the header in the smokebox. The running gear and tender, all wheels of which were derailed, came to rest 1,300 ft. from the point of explosion. Parts of the wreckage, including the locomotive cab, the streamline nose, headlight, smokebox door, and the brake valves and pedestal, were scattered in all directions within a radius of 500 ft. The firebox crown sheet, with the upper part of the door sheet and parts of both side sheets attached, was found turned inside out, to the right of the track about 400 ft. forward from the point of the explosion. Many of the appurtenances were broken from the boiler and many parts apparently buried and lost.

The locomotive was a 4-6-4 type of the J-3a class, which had received a new tender of the tender-bed type, with a capacity of 17,500 gals. of water and 43 tons of coal, on August 18, 1943. At the time of the accident the locomotive had made 17,558 miles since the last shopping. The boiler was equipped with a low-water alarm.

Examination of the boiler following the accident showed that about 19 sq. ft. of the crown sheet had been overheated in a triangular area, the base of which extended between the fourth and fifth longitudinal rows of stays on each side of the center at the front end and tapered irregularly back to the thirtieth transverse row from the flue sheet. The line of demarcation of

(Continued on page 580)

CLASS I RAILROADS—UNITED STATES
Month of August

	1943	1942
Total operating revenues	\$800,232,733	\$683,806,778
Total operating expenses	467,287,517	399,292,303
Operating ratio—per cent	58.39	58.39
Taxes	191,718,660	132,228,756
Net railway operating income (Earnings before charges)	124,561,490	135,928,942
Net income, after charges (estimated)	84,600,000	89,243,435

Eight Months Ended August 31

Total operating revenues	5,938,086,247	4,629,747,345
Total operating expenses	3,564,504,912	2,947,031,690
Operating ratio—per cent	60.03	63.65
Taxes	1,296,613,752	745,726,990
Net railway operating income (Earnings before charges)	948,083,694	821,238,008
Net income, after charges (estimated)	610,100,000	465,200,276

which the net earnings of the carriers has shown a decline," the A. A. R. statement noted.

Operating revenues in the eight months totaled \$5,938,086,247 compared with \$4,629,747,345 in the same period in 1942, an increase of 28.3 per cent.

Operating expenses amounted to \$3,564,504,912 compared with \$2,947,031,690 in the corresponding, an increase of twenty-one per cent.

Class I roads in the eight months paid \$1,296,613,752 in taxes compared with \$745,726,990 in the same period in 1942. For August alone, the tax bill amounted to \$191,718,660 an increase of \$59,489,904 or forty-five per cent above August, 1942. Thirteen Class I roads failed to earn interest and rentals in the eight months, of which six were in the Eastern district, two in the Southern region, and five in the Western district.

The August gross totaled \$800,232,733, compared with \$683,806,778 in August, 1942, while operating expenses totaled \$467,287,517 compared with \$399,292,303.

Class I roads in the Eastern district in the eight months had estimated net income of \$251,300,000 compared with \$200,105,030 in the same period last year. Then eight-

Class I roads in the Western district in the eight months had an estimated net income of \$260,500,000 compared with \$183,616,991 in the same period last year. Their eight-months net railway operating income was \$422,945,337 compared with \$352,875,714. Gross in the Western district in the eight months totaled \$2,445,821,621 an increase of 36.8 per cent compared with the same period in 1942, while operating expenses totaled \$1,412,681,433 an increase of 26 per cent.

August's estimated net income in the Western district was \$37,600,000 compared with \$40,011,257 in August, 1942; net railway operating income amounted to \$55,797,991 compared with \$62,727,249.

Further Hearings on Hobbs Bankruptcy Bill

Further hearings on H.R. 2857, the bill introduced by Representative Hobbs, Democrat of Alabama, to restrict the Interstate Commerce Commission's authority in railroad reorganization proceedings will begin October 11 before the House judiciary committee's special subcommittee on bankruptcy and reorganization. The bill is opposed by the I. C. C.

Supreme Court to Hear Roads' Cases

Begins new term with I.C.C. findings and strike on T.P. & W. on docket

The Supreme Court of the United States reconvened October 4 for its new term with some 400 cases on its docket, including a number involving the regulatory powers of the Interstate Commerce Commission and interpretations of the Railway Labor Act. The court is expected to announce on October 11 what action it will take on a large number of the petitions for review filed during the summer adjournment, after which it will begin on cases already scheduled for argument.

Among cases of interest particularly to railroads and the transportation industries is that of the *Brotherhood of Railroad Trainmen vs. T. P. & W.*, which grew out of the strike of that road's operating employees which preceded federal operation under the Office of Defense Transportation. The case rests on the union's claims that (1) the federal district court was without jurisdiction in enjoining striking employees from interfering with interstate shipments, either by violence or threats of violence, that (2) the railroad was not entitled to a restraining order because it had failed to make reasonable efforts to settle the dispute through arbitration and because the efforts of public officers to protect its property had not been exhausted, and that (3) the extension of the court's temporary restraining order beyond five days was a violation of the Norris-LaGuardia Act.

The Supreme Court last April granted certiorari in this case, which is scheduled for early argument, after the appellate court had upheld the action of the district court, finding, in part, that the railroad was not required to engage in arbitration proceedings before securing an injunction under the Railway Labor Act, nor was it obliged to propose both mediation and arbitration under the Norris-LaGuardia Act.

Another case scheduled for early argument is that of the *Switchmen's Union of North America vs. National Mediation Board*, in which the union contends that the board is not required by the Railway Labor Act to hold that all the employees of a single craft employed on the entire system of one operating railway company must be voted to determine a single union representation, but has discretionary powers in designating what employees are involved in a dispute and entitled to participate in an election. The lower courts upheld the board's finding that, in the particular case before it, all yardmen constituted a single class of employees, without regard to the corporate history of the road involved, and that the board had no discretion to deny a right expressly granted by the statute to a craft or class of employees.

Three other cases scheduled for argument involve disputes between unions over representation of employees. These are *Brotherhood of Locomotive Engineers vs.*

Missouri-Kansas-Texas, and two associated cases, *Brotherhood of Locomotive Engineers vs. Southern Pacific* and *Brotherhood of Locomotive Firemen & Enginemen vs. Brotherhood of Locomotive Engineers*. These cases grew out of disputes brought into the courts after the failure of an agreement between the two unions for the treatment of jurisdictional controversies, and came to the Supreme Court after the appellate courts had modified the original judgments.

Interstate Commerce Commission findings were challenged in two cases in which the Supreme Court has noted probable jurisdiction. One, *City of Yonkers vs. U. S.*, grew out of the commission's approval of an application of the New York Central for authority to abandon an electrically-operated branch serving a section of Yonkers, N. Y. The city's suit to have the commission's order set aside was dismissed in the lower court, but the contention is made that the commission was without jurisdiction in the circumstances and that the city was denied a fair hearing before the commission.

The commission's order in a rate division proceeding came before the court in *I. C. C. vs. Hoboken Manufacturers'*, after the district court failed to support the commission on the ground that it should have made a finding as to the value of the road's use of patented devices in loading and unloading freight cars in and out of ships. The position of the commission was that the switching road's transportation service ended at the dock, and that disputed through rate divisions on lighterage-free freight relate to transportation and do not involve the road's arrangement with its parent company for the use of the patented loading and unloading devices.

The effect of the statute of limitations on an action to recover unpaid freight charges is at issue in *Midstate Horticultural Co. vs. Pennsylvania*. Here judgment for the railroad was affirmed in the state court on the showing that, although the action to recover was filed more than the statutory three-year period after the cause, the shipper had executed a written agreement to waive the statute of limitations in consideration of the road's forbearance in filing suit while negotiations were still pending. The claim was made that Section 16 of the Interstate Commerce Act is applicable in all such cases, without regard to agreements between the parties, and that such a waiver would in any case be void as a discrimination within the meaning of Section 3(1) of the Act.

Several cases before the court deal with motor carrier regulation under the Interstate Commerce Act. In *Crescent Express Lines vs. U. S.* the authority of the commission to restrict the type of vehicles or the routes or services of a common carrier highway operator in issuing a grandfather clause certificate has been challenged, but upheld in the district court. The operator has petitioned for a final determination on the contention that the commission erred in limiting its certificate to 6-passenger vehicles and irregular or door-to-door service, but the court in June deferred action on the petition for review.

(Continued on page 580)

Congressional Ltd. Accident Reported

Journal failure developed in spite of precautions regularly taken

The direct cause of the derailment of the advance section of the Pennsylvania's "Congressional Limited" within the corporate limits of Philadelphia, Pa., on September 6 was, according to the report of the Interstate Commerce Commission, a broken journal on the seventh car of the 16-car train. The report, which resulted from an investigation under the direction of Commissioner Patterson, made no recommendation of any change in the road's rules or operating practices, and did not attribute the accident even indirectly to any individual's error or neglect.

The circumstances of the accident were reported in *Railway Age* of September 11, page 428. At the time the commission's report was compiled, the available data indicated that it resulted in the death of 78 passengers and 1 dining car employee and in the injury of 102 passengers, 5 Pullman employees and 22 dining car employees.

The accident occurred at 6:06 p. m. on the Pennsylvania's four-track main line at a point 150.9 ft. east of a signal tower known as Shore, Pa., which is 2.9 miles east of the North Philadelphia passenger station. In addition to the four main tracks, the line at that point is paralleled on each side by a secondary track. The train was traveling on track No. 1, the eastward passenger track, and the derailment occurred at the west frog of a movable-point crossing where a crossover (from track No. 2 to the southerly secondary track) intersects track No. 1. This point is within interlocking limits, and the eastward and westward home signals of the interlocking are located 1,582 ft. west and 468 ft. east, respectively, of the point of the accident.

Trains are operated by an automatic block and cab signal system. Power for the electric locomotives is supplied through an overhead catenary system, and the signal bridges support this overhead wiring as well as the signals. The westward signal bridge is a lattice truss, spanning the four main tracks and the northern secondary track, and is supported by A-frame bents on concrete pedestal foundations. The pedestal foundation on the south side is 10 ft. 8½ in. south of track No. 1.

The main tracks are tangent for a distance of 1.06 miles west of the point of the accident, and for 0.27 mile further to the east. The grade is 0.61 per cent descending, for eastbound trains, from 4,822 ft. west of the point of the accident to 675 ft. east thereof. There was no evidence of defective track. The train was moving at a speed of 56 m.p.h. in territory where the authorized speed is 70 m.p.h., and had received a proceed indication from the eastward signal at Shore.

Designated as Passenger Extra 4930 East, the train consisted of electric locomotive No. 4930 and 8 coaches, 2 dining

cars, and 6 Pullman parlor cars, in the order named. These cars were all of steel construction. The train left Washington, D. C., at 4 p. m. and made no stops in the 2 hr. 6 min. run of 141.4 miles to the point of the accident, as the schedule for the regularly-operated advance section of this train calls for no passenger stops between the initial terminal and Newark, N.J.

The engine and the first six cars, still coupled, stopped with the front end of the engine 2,198 ft. east of the point of the accident. The rear truck of the sixth car became detached and came to a stop on the roadbed adjacent to track No. 1, 740 ft. east of the point of derailment. The seventh to the fourteenth cars, inclusive, and the front truck of the fifteenth car, were derailed. The seventh and eighth cars were demolished and the ninth to twelfth cars, inclusive, were badly damaged. The thirteenth and fourteenth cars were slightly damaged.

Most of the fatalities occurred in the seventh and eighth cars. The seventh car struck the south A-frame supporting the westward signal bridge with sufficient force to shear it from the concrete foundation and move it 22 ft. eastward. The car was sheared for almost its whole length diagonally from the floor on the right side to the junction of the roof and side sheets on the left side, and came to rest with the rear end jammed against the A-frame. The eighth car stopped on its right side on top of the rear end of the seventh car, with the center of its roof against the A-frame. The superstructure was crushed inward and the center sills were bent. The ninth to the twelfth cars came to rest practically upright in various positions across the main tracks. The thirteenth and fourteenth cars remained upright and practically in line with the track. The rear truck of the fifteenth car, and the sixteenth car, remained on the rails.

The rails and ties bore flange marks for about 72 ft. beyond the heel of the west frog of the movable-point crossing, and the track was torn up for 480 ft. damaged for an additional 1,056 ft. beyond the flange marks.

The immediate cause of the accident was the failure of the left front journal of the front truck of the seventh car, P. R. R. 1860. After the accident it was found that this journal was broken off, the fracture varying from $7\frac{1}{4}$ to $7\frac{3}{4}$ in. inward from the collar. The end of the journal remaining attached to the wheel assembly was ground down to an oval shape by contact with the journal wedge, but there was no evidence of cutting on the outer portion. The journal box was demolished, but a portion of the outer end of the bearing was recovered. It showed no lining metal remaining on the bearing surface.

When examined $1\frac{1}{2}$ hr. after the accident the journal was heated considerably above normal running heat, the report discloses. Furthermore, tests and analyses of the journal and bearing indicated that the journal had been heated to a temperature of at least 900 deg. and its surface temperature had reached some 1,400 deg. The shallowness of the structural change resulting from this high temperature indicated that the heating occurred very rap-

Competition for Securities to Be Argued

The Interstate Commerce Commission has announced that oral arguments in its Ex Parte 158 proceeding, dealing with compulsory competitive bidding for all new railway securities, will be heard by the full commission at Washington, D. C., beginning at 10 a.m. on November 5. The substance of some of the briefs filed with the commission in this proceeding on behalf of the railroads and certain banking firms and investors was indicated in *Railway Age* of September 18, page 465.

idly, the report says further, basing this observation on the report of the road's engineer of tests. The metal of the journal and bearing were found to meet Association of American Railroads specifications.

Coach 1860 was built in 1909 and modernized in 1935, the report adds. It was of conventional all-steel, plate, girder, post and sill construction. Class 2B repairs were made in June, 1941. The front wheels of the front truck were mounted on the axle in 1937. The wheels and axle were applied to the car and the journals were repacked June 16, 1943. The car was equipped with 4-wheel trucks, with $5\frac{1}{2}$ by 10 in. journals and one-piece cast steel side frames.

The report quotes the road's rules requiring engine and train crews to observe the equipment of their own train, moving and standing, as frequently as opportunity permits, in order to detect unsafe conditions, and to observe passing trains, when practicable, for the same purpose. Crews on moving trains are required to be on the lookout for signals from employees on other trains or on the roadway, and when practicable to exchange signals with them, to be informed of such observations.

The commission's investigation developed that members of the crew of the train involved made frequent observations of the equipment between Washington and Shore without observing evidence of an overheated journal. The members of the crews of four eastbound and two westbound freight trains, operators at fifteen points, and mechanical forces at Baltimore, Md., Wilmington, Del., and Philadelphia (30th Street) and North Philadelphia, the last being 2.9 miles west of Shore, also observed the equipment of the train as it passed them and saw no defective condition. The crew of a yard engine standing about 1 mile west of Shore observed fire and smoke from the left side of Passenger Extra 4930 as it was passing, about 1 min. before the accident occurred, and telephoned that fact to the operator at the Shore interlocking tower, but the engine had passed that tower before the operator could take any action to stop the train.

The report disclosed that the mileage accumulated by coach 1860 in a period of 82 days prior to the day of the accident was about 30,000 miles. During this time the car had been used regularly in passenger service between Washington and New

York and other points. On the day of the accident it had run from New York to Washington in the train arriving at that terminal about 11:20 a.m., and during that run no defective condition had been observed. During a layover of about $4\frac{1}{2}$ hr. in Washington the journal boxes were supplied with oil and inspected, but no defect was observed.

Freight Forwarder Accounts

The Interstate Commerce Commission last week made public a September 21 order making its uniform system of accounts for freight forwarders effective January 1, 1944.

Pension Act Amendment

Representative Morrison, Democrat of Louisiana, has introduced H.R. 3396 to liberalize Railroad Retirement Act provisions relating to eligibility for annuities.

N. M. B. Appointment

Henry M. Cunningham of Washington, D. C., has been appointed to the National Mediation Board's staff of mediators. He was formerly a member of the staff of the Transportation Board of Investigation and Research where he was engaged on the Board's traffic flow studies.

News Broadcasts in a Passenger Terminal

Through the medium of the loud-speaker system used for train announcements, Boston & Maine and Maine Central passengers at the Portland (Me.) Union Station now hear world news at the same time it goes on the air.

Four times daily, in co-operation with a local radio station, a five-minute broadcast of the latest happenings is sent over a special telephone line from the radio station to the railroad terminal. This special circuit is then cut in to the regular loud-speaker system used in calling trains.

August Truck Freight Volume 7.1 Per Cent Over 1942

The volume of freight transported by motor carriers in August increased 1.4 per cent over July and held 7.1 per cent over August, 1942, according to American Trucking Associations, Inc. The A. T. A. index figure, based on the 1938-40 average monthly tonnage of the reporting carriers, was 191.35.

Comparable reports were received from 215 truckers in 41 states. They transported an aggregate of 1,708,843 tons in August, as against 1,685,344 tons in July, and 1,595,951 tons in August, 1942.

Almost 81.5 per cent of all tonnage transported in the month was transported by carriers of general freight. The volume in this category increased 1.4 per cent over July and 6.9 per cent over August of last year. Transporters of petroleum products, accounting for a little more than 8 per cent of the total, increased 3.3 per cent over July, and 25.3 per cent over August, 1942. Haulers of iron and steel products reported slightly more than 3.5 per cent of the total; their volume showed virtually no change as compared with July, but decreased 6.1 per cent under August of last year. Almost 7 per cent of the total was miscellaneous

commodities, including tobacco, milk, textile products, coke, bricks, building materials, cement and household goods. Tonnage in this class showed an increase of 0.1 per cent over July, but decreased 1.1 per cent under August, 1942.

Freight Car Loading

Loadings of revenue freight for the week ended October 2 totaled 910,643 cars, the Association of American Railroads announced on October 7. This was an increase of 3,332 cars or 9.4 percent above the preceding week, an increase of 3,357 cars or 0.4 percent above the corresponding week last year, and a decrease of 7,253 cars or 9.8 percent below the comparable 1941 week.

Loading of revenue freight for the week ended September 25, totaled 907,311 cars and the summary for that week as compiled by the Car Service Division, A. A. R., follows:

Revenue Freight Car Loading			
For the Week Ended Saturday, September 25			
District	1943	1942	1941
Eastern	172,313	163,016	187,750
Allegheny	197,043	186,606	199,681
Pocahontas	56,044	56,412	59,921
Southern	116,003	127,245	128,779
Northwestern	152,768	146,412	145,713
Central Western	138,210	139,605	133,855
Southwestern	74,930	78,131	64,095
Total Western Districts	365,908	364,148	343,663
Total All Roads	907,311	897,427	919,794
Commodities			
Grain and grain products	53,214	47,948	40,480
Live stock	23,657	20,201	16,513
Coal	179,814	171,394	171,051
Coke	14,928	14,019	13,890
Forest products	43,684	50,062	46,290
Ore	87,147	78,134	71,267
Merchandise l.c.l.	102,606	89,865	160,593
Miscellaneous	402,261	425,804	399,710
September 25	907,311	897,427	919,794
September 18	902,766	903,099	907,969
September 11	834,671	814,897	914,656
September 4	901,075	887,960	797,791
August 28	904,007	899,405	912,720

Cumulative Total			
39 Weeks	31,504,697	32,239,824	31,267,749

In Canada.—Carloadings for the week ended September 25 totaled 72,255 compared with 72,705 for the previous week and 67,833 for the corresponding period last year, according to the compilation of the Dominion Bureau of Statistics.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:		
September 25, 1943 ..	72,255	38,142
September 18, 1943 ..	72,705	37,250
September 11, 1943 ..	62,781	37,103
September 26, 1942 ..	67,833	37,298
Cumulative Totals for Canada:		
September 25, 1943 ..	2,518,903	1,460,733
September 26, 1942 ..	2,490,190	1,310,870
September 27, 1941 ..	2,332,080	1,143,999

More Time for Forwarder Rate Shift Proposed

Chairman Lea of the House committee on interstate and foreign commerce has introduced H.R. 3366 to amend section 409 of the Interstate Commerce Act so as to extend for two years the period during which forwarders are required to discontinue joint-rate arrangements with motor carriers and shift over to the use of assembling and distribution rates published by the carriers. The bill would also liberalize section 409's provisions with respect to the establishment during the transition period

of additional joint rates to meet competitive conditions.

The present language of section 409 stipulates that the joint rates could be continued during a period of 18 months from the enactment date, which makes the deadline November 16, 1943. An extension of the transition period as well as the other proposed change noted above was recommended to Chairman Lea by Interstate Commerce Commissioner Splawn, chairman of the commission's legislative committee.

I. C. C. Rejects Allied Vans Pooling Plan

The Interstate Commerce Commission has denied the application of Allied Van Lines, Inc., for approval of a plan for the pooling and division of traffic and earnings of more than 350 carriers of household goods operating throughout the country. The decision in No. MC-F-1775 brought forth a lengthy dissent from Commissioner Lee who would have approved the plan subject to certain terms and conditions.

Generally the proposed plan contemplated that the pooled business would be operated by Allied in its own name as a common carrier by motor vehicle; and contracts with the pooling carriers would run for 25 years with provision for withdrawal or expulsion on 90-days notice. Allied is an organization maintained by members of the National Furniture Warehousemen's Association for the purpose of coordinating the operations of local haulers into a long-distance service for moving household goods. If the pooling plan were approved, Allied proposed to withdraw its pending application for "grandfather" rights as a motor common carrier of household goods throughout the country.

The commission's adverse decision was based upon its finding that the proposed set-up was more than a pooling plan in that it would effect "a complete relinquishment" by the participating carriers "of the power to control their future operations." Thus did the commission accept the view of protestants that there was a procedural defect in bringing the application under the pooling provisions when it should have been brought under the consolidation or merger provisions. And on the latter basis, the commission found that the record was not adequate to support a finding "that the transaction proposed would be consistent with the public interest or that the terms and conditions presented by the parties are just and reasonable, whether we view it as a lease of the operating rights and properties or as acquisition of control of the operations of the carriers by Allied in a manner other than through stock ownership."

Neither did the commission find sufficient evidence upon which it might base a finding that the proposed divisions of the line-haul transportation charges are or are not just and reasonable. Meanwhile the commission had rejected Allied's contention that its proposed relationship to the motor carriers was analogous to the relationship between the railroads and the Railway Express Agency. "In addition to the fact that express agencies are accorded a definite status under the act," the commission said, the pooling arrangements in the express

business "did not include surrender by the railroads of dominion and control over their railroad operations, transference of their responsibilities as railroads under the act to the express agencies, or conduct by the latter of railroad operations."

Dissenter Lee appraised the majority report as one which "contains a confusing, and in some respects erroneous, statement of applicant's proposal and of the evidence of record." He thought it placed on the act's pooling provisions "a narrow and highly technical meaning," which "if followed in the future, will as a practical matter prevent worthwhile pooling or division of traffic, service, or earnings by motor common carriers."

Thus Mr. Lee's detailed discussion with which he led up to the statement of terms and conditions under which he would have approved the application. He also pointed out that the commission would retain jurisdiction to impose from time to time such additional conditions as it might deem necessary. Hence, as Mr. Lee sees it, "adequate safeguards for the public are provided by the act."

August Earnings in Canada

The two principal Canadian railways reported August earnings and expenses as follows:

Canadian National		
	1943	Increase
Gross	\$39,687,000	\$5,268,000
Expenses	30,625,000	4,384,000
Operating Net* ..	\$ 9,062,000	\$ 884,000
8 Months		
Gross	\$290,003,000	\$53,036,000
Expenses	227,310,000	44,272,000
Operating Net* ..	\$ 62,693,000	\$ 8,764,000

Canadian Pacific		
	1943	Increase
Gross	\$ 26,855,759	\$ 4,801,992
Expenses	23,011,872	4,178,135
Net*	\$ 3,843,887	\$ 623,857
8 Months		
Gross	\$189,729,872	\$24,717,005
Expenses	160,752,776	24,176,473
Net*	\$ 28,977,096	\$ 540,532

* Net as shown in this tabulation, for the C. N. R., is equivalent to "Net Railway Operating Income" in U. S. accounting terminology, while the net shown for the C. P. R. corresponds to "Net Operating Revenue" in U. S. terms.

Squire Named to Succeed Reed on Retirement Board

Frank C. Squire, valuation engineer of the Finance, Accounting, Taxation and Valuation Department of the Association of American Railroads, has been nominated by President Roosevelt to be railroad management's representative on the Railroad Retirement Board for the remainder of a five-year term expiring August 29, 1948. Mr. Squire, whose appointment went to the Senate on September 30, was named to succeed M. Roland Reed, former Pennsylvania mechanical department officer.

It was stated at the Association of American Railroads that Mr. Reed was to be recalled to P. R. R. service. He has served one term on the Retirement Board, having been appointed in October, 1938, to succeed James A. Dailey. He was reappointed by President Roosevelt on July 8, but the Senate had not acted upon the appointment by the time Congress got

away for its Summer recess. Thus the nomination along with others of like status was returned to the President, who later gave Mr. Reed the recess appointment under which he has been serving since the expiration of his term on August 29.

Club Meetings

The Northwest Locomotive Association will next meet October 18, at 8 p.m., Woodruff Hall, St. Paul, Minn. Two motion pictures will be shown—"The Inside of Arc Welding," and "The Inside of Atomic Hydrogen Arc Welding"—with remarks by L. G. Pickhaver, welding engineer, General Electric Company, Chicago.

The next meeting of the Car Department Association of St. Louis will be held October 19, 8 p.m., at the Hotel De Soto, St. Louis, Mo. Lieut. Col. Frank E. Cheshire, Commander of Camp Millard, Bucyrus, Ohio, will present a paper entitled "Railway Shop Troops in Training."

Pacific Electric Case Is Non-controversial

(Continued from page 574)

Boatner, director of the Division of Railway Transport, Office of Defense Transportation, and from representatives of the War Production Board, War Manpower Commission, and War Department.

Generally P. E. President Smith took the position that the recommended 13-cent increase is necessary to put the road in a position to secure and retain the employees required to maintain its service. "I think," he said, "that the full 13 cents should be applied. Certainly, a minimum of 10 cents should be granted." Previously Mr. Smith had said that if nothing more than the three cents authorized by Mr. Vinson is the final award, the P. E. will lose a number of employees. That, he added, would mean a permanent impairment of service, particularly passenger service. The road is already about 200 to 250 men short, and those on the job are working "excessive hours." Absenteeism is increasing, and Mr. Smith is satisfied that it is due to the men being "tired out."

In the Los Angeles area, he went on, the differential between transit wage rates and industrial wage rates is greater than in any other area of the country. That, he added, is what lies behind his argument for justifying the recommended increase on basis of the needs of the war effort. Earlier in the hearing, Chairman Shaw had observed that the parties were "both on the same side of the law suit." Whereupon Mr. Karr replied that "we are up to 13 cents." Later the P. E. vice-president and general counsel stated that "we are trying as hard as we can to help him [Mr. Nutter] get 13 cents."

In response to questions from Mr. Nutter, Mr. Smith conceded that it would be but equitable for P. E. employees to get a 15-cent raise to preserve differentials in the event the National War Labor Board approves in full a 10-cent increase now being proposed for employees of the Los Angeles Electric Railway. Mr. Smith also explained why he made what he admitted was a most unusual concession in agreeing

to pay the strikers for the two days they laid off. He said he was advised by Mr. Nutter that the latter needed the concession to offer as an inducement to get the men back. Mr. Nutter confirmed this, saying it was the "only thing that broke the tension at the meeting" which had been called to vote on a return to work.

The board was interested in instances wherein wage increases above what the "Little Steel" formula allowed had been granted because they were found necessary for the effective prosecution of the war. Mr. Nutter cited two WLB decisions involving employees of transit companies at Akron, Ohio, and Newport News, Va.

C. N. R. President Lauds Employees' Co-operation

In a message to Canadian National management and union representatives, who met September 29, in Montreal, for the 17th annual meeting of the Union-Management Co-operative Movement, Motive Power and Car Equipment sections, R. C. Vaughan, chairman and president of the C. N. R., paid tribute to the more than 24,000 employees in the system's mechanical department for responding effectively to the demands placed on them for increased work and added responsibilities in the maintenance of locomotives and rolling stock required for the heavy war traffic.

Expressing the belief that all concerned realized the burden of present-day passenger and freight traffic, Mr. Vaughan cautioned however: "It is imperative that the running gear on all our equipment should be kept in safe condition, even if we do not have an opportunity of finishing the cars inside and outside as we would like to do. We have still greater burdens to carry before the war is over, and it will require the co-operation of all of us to handle our work efficiently."

In a similar laudatory expression, N. B. Walton, executive vice-president, told the employees that "without the good work on their part it would not have been possible to meet our wartime requirements."

E. R. Battley, chief of motive power and car equipment, at Montreal, opened the meeting, voicing concern for the winter ahead.

Referring to the misjudgment of the Germans in first building highways to the neglect of their railways, and finally having to reverse this policy, S. W. Fairweather, vice-president, research and development, remarked: "We in Canada and the United States could have accomplished little without the railways. Urging employees "to look upon the Canadian National railways as their own," he pointed to the peacetime "battle" ahead, that their "present advantageous position" shall be maintained.

The meeting was attended by officers of shop crafts and supervisory officers who direct the system shops in Canada and on the lines of the Central Vermont and the Grand Trunk Western. The union-management movement has been in existence for 18 years, and through shop, divisional and regional committees, suggestions are presented from employees for the improvement of practice and work conditions. Since its inception over 28,121 recommenda-

tions have been made, and of these, 80 per cent have come from men in the ranks.

A variety of subjects were covered at the Montreal meeting—first aid, accident and fire prevention, improvements in "amenities," lighting and ventilating of shops and conservation of materials. In connection with the latter, D. McK. Ford, vice-president, purchases and stores, urged "conservation and salvage," observing that during the year the Canadian National will make purchases of over \$100 millions, with more than \$30 millions of this total for material needed by the mechanical department.

E. A. Bromley, general purchasing agent, looks upon the mechanical department as the "biggest customer" of his organization. He asked those present, in reporting back to the men on the job to liken material to cash, and waste to the burning of money. He offered the example of the thousands of gross of pencils purchased annually when a railway, to earn the price of a single pencil, must haul one ton of freight one mile.

As an instance of a condition brought about by the war, A. H. Williams, general supervisor of apprentice training, reported that while the Canadian National has taken on 332 apprentices this year, 338 in training have left for the armed forces. Youths are now accepted at 16 by the railroad.

Trans-Mo. Board Meets at St. Joseph

The problem of handling two years' grain crop at one time and recurrent instances of tightness of car supply occupied the attention of the Trans-Missouri-Kansas Shippers Advisory Board, at a meeting at the Hotel Robidoux, St. Joseph, Mo., on September 29, presided over by Chairman H. J. Goude-lock, executive vice-president, Mid-West Coal Traffic Bureau. The preliminary meetings of the executive and other committees were held in Kansas City on the preceding day and the proceedings at St. Joseph began with a joint luncheon sponsored by the board and eight civic bodies of St. Joseph, followed by the regular meeting in the afternoon.

Charles Layng, transportation editor, *Railway Age*, was the principal speaker at the luncheon. He described the railway transportation situation in Axis and occupied countries and the successful attempts being made to hamper such transportation. "If, as is happening every day," he said, in closing, "American boys give their lives to interfere with Axis transportation, certainly it isn't too much to ask that American shippers exert every effort to improve American transportation, through heavier loading and prompt release of cars."

W. F. Kirk, regional director of the O. D. T., told of the efforts being made to promote efficient transportation to and from the West Coast. He told of many changes in routing that have enabled the prompt movement of cars which would have been delayed badly had they followed their original routing. He complimented the railways on the fine job they did in handling oil during the severe floods of a few months ago and predicted the biggest business in history for the western railways between

now and next March. "No railroad is in a position to hang out a 'Business as Usual' sign, he warned, "neither has any shipper the right to trade on such a statement to the disadvantage of the war effort as a whole."

The forecast of carloadings for the fourth quarter of 1943 indicates that there will be a 7.7 per cent decrease in the board's territory in that period. Much of this decrease is shown in the loadings of construction materials, such as cement, sand, stone and gravel, but the release of these open top cars is being awaited by the coal industry, which expects to increase its loadings by 10,000 cars or more. Forthcoming quarter loadings are estimated at 419,377 cars, as compared with actual loadings of 454,348 cars in the same period of 1942.

Vice-President Carl Giessow, of the National Association of Shippers Advisory Boards, who is traffic director of the St. Louis Chamber of Commerce, reported on the meetings of the national board committee with the I. C. C. and the O. D. T. He stated that considerable discussion was had about "expeditors" at a recent meeting and that it was thought now that the practice of car-chasing by some of these men had been largely broken up. He asked the shippers not to attempt anything of the sort again as it accomplishes nothing and impedes transportation. He stated that it had been decided to restore some of the scheduled merchandise cars in the direction of empty car movement, even where it was not possible to secure the minimum amount of tonnage originally set by the O. D. T.

In presenting the report of the railway contact committee, Chairman W. N. Garvin, general superintendent transportation, Wabash, said that heavy demands for cars for military freight could be expected and also cars for the Northwestern spring wheat movement and for the Midwestern soya bean crop. He asked the shippers not to request special cars such as long gondolas, wide-door or end-door cars unless the lading absolutely required it. He stated that the railways were making every effort to relieve the tight situation in coal cars existing in the T-M-K territory.

E. F. Ledwidge, general traffic manager, Granite City Steel Company, reported excellent work done by the car efficiency committees and J. H. Tedrow, traffic commissioner, Kansas City Chamber of Commerce, reported for the merchandise committee. He urged a study by the shippers of recent orders of the O. D. T. relating to merchandise, which orders, he said, seem to be ambiguous. L. F. Orr, general traffic manager, Pet Milk Company, presented a strong resolution against rate legislation now pending; also a resolution asking that the railways be permitted to establish tax-free sinking funds to cover deferred maintenance. Both resolutions were adopted unanimously. As to the rate-making legislation, Mr. Orr stated that the bills are intended as an intimidation of the I. C. C., and his opinion was supported by the Board as a whole. Joe Marshall, Freight Claim division, A. A. R., urged the importance of proper marking of shipments.

R. E. Clark, manager, closed car section,

and J. J. Hayden, district manager, both of the Car Service division of the A. A. R., reported respectively on the national and local car situation. Mr. Clark pointed out that the present average box car "surplus" is really only a small working supply. He said that as of September 28, 1,180 grain elevators were closed in the Northwest because of lack of box cars and said that cars were now being diverted to that territory and this would have to continue for some time to come. He warned also that 7,500 box cars would have to be employed constantly for some time in the movement of 16,000,000 bushels of grain for stock feeding purposes from Canada to U. S. points.

A. S. M. E. Officers for 1943-44

Robert M. Gates, president, Air Preheater Corporation, New York, has been elected president of the American Society of Mechanical Engineers for the year 1943-44. The new vice-presidents elected to serve two-year terms are David W. R. Morgan, manager, Condenser Pump and Blower Division, Westinghouse Electric & Manufacturing Co., Essington, Pa.; Jonathan A. Noyes, district manager, Sullivan Machinery Co., Dallas, Tex.; Ford L. Wilkinson, Jr., Dean of Engineering, Speed Scientific School, University of Louisville, Louisville, Ky., and Rudolph F. Gagg, assistant to the general manager, Wright Aeronautical Corporation, Paterson, N. J.

Managers to serve on Council for three-year terms are James M. Robert, dean, College of Engineering, Tulane University, New Orleans, La.; Samuel H. Graf, professor and head of Mechanical Engineering, Oregon State College, Corvallis, Ore., and Alton C. Chick, assistant vice-president, Manufacturers Mutual Fire Insurance Co., Providence, R. I. J. Calvin Brown, attorney at law and mechanical engineer of Los Angeles, Calif., has been elected manager to serve until December, 1944, to succeed Herbert L. Eggleston, manager, Gas and Refining departments, Gilmore Oil Company, resigned.

Supreme Court to Hear Roads' Cases

(Continued from page 576)

In *Thomson vs. U. S.* the commission again was upheld by the district court. In this case, in which the Supreme Court noted probable jurisdiction, the commission denied a grandfather clause certificate to the Chicago & North Western's trustee to engage in an operation as a common carrier of passengers and freight by motor vehicle, supplementing rail service, where the operation on which the grandfather right was based had been conducted with vehicles provided by motor carriers under contract with the road. On behalf of the road, the contentions before the court are (1) that the circumstances entitled it to the grandfather clause certificate, and (2) that, even though the commission failed to take this view, it should have considered granting the application under Sections 206 and 207 of the Act independent of the grandfather clause.

The court also has noted probable juris-

diction in *McLean Trucking Co. vs. U. S.*, a case where the commission's action, which was upheld by the district court, was approval of a merger of motor carriers and of security issues in connection therewith. The contentions on which the appeal was based are (1) that the commission did not consider the antitrust laws in reaching its decision, (2) that it failed to find that existing facilities are inadequate, and (3) that its decision reflected the philosophy of the Transportation Act of 1920, rather than of the Act of 1940.

An employers' liability case, *Brady vs. Southern*, is before the court for rehearing. It involves the question whether the 1939 amendment to the Federal Employers' Liability Act abolishing the defense of assumption of risk was intended to be retroactive. The state court held, on appeal, that the amendment is inapplicable in this case, growing out of the death of a brakeman which occurred in 1938, and that the railroad could not reasonably have foreseen that the accident would have resulted from the unusual conditions that prevailed.

Several other motor carrier, Railway Labor Act, and railroad reorganization cases have been added to the court's docket, but it has not yet indicated what disposition will be made of them.

Low Water Cause of "Century" Accident

(Continued from page 575)

this area, which was of a distinct blue color, showed the water level to have been about 3½ in. below the highest point of the crown sheet.

On this run the locomotive had hauled train No. 26 from Chicago with changes of crew at Elkhart, Ind.; Toledo, Ohio; Collinwood; Buffalo, N. Y., and Syracuse. The evidence brought out in the investigation, conducted by the Bureau of Locomotive Inspection, Interstate Commerce Commission, disclosed no unusual circumstances until after the train had departed from Buffalo. While operating at reduced speed on yellow block signals between Buffalo and Depew, N. Y., the fireman reported that the operating rod which controlled the throttle of the centrifugal feedwater pump became disconnected. The locomotive was operated to Rochester, N. Y., using the injector to supplement the feedwater pump. While standing at a red block signal at Rochester the extension rod was again connected. After leaving Rochester the rod again became disconnected, but this time the throttle was open wide enough so that the pump supplied the boiler without assistance from the injector. A further attempt was made to repair the connection between the extension rod and the valve stem at the Waynesport coaling plant, but the connection again separated shortly after leaving that point. The fireman, however, opened the pump throttle to a point wide enough to over-supply the boiler and the water supply was controlled by stopping and restarting the pump with the over-speed trip mechanism. At Syracuse the situation was explained to the engineman, fireman, and traveling fireman who were to take the train east from Syra-

use by the engineman, fireman and traveling fireman who brought the train in from Buffalo. These men decided to go on with the locomotive, leaving the relief locomotive which had been called for by the incoming engineman en route.

In discussing the evidence the report points out that "the positions of the injector steam valve, the feedwater pump throttle or operating valve, the feedwater pump reset device at the time of the explosion could not be determined because of the ensuing damage." All persons on the locomotive were killed and, therefore, no information as to the maintenance of the water level after the locomotive departed from Syracuse could be obtained. Judging by the results of boiler explosions investigated by our Bureau of Locomotive Inspection where crown sheets were equipped with protective devices, the effects of the accidents were slight as compared with the complete destruction of the boiler as occurred here. It is obvious that this explosion would not have been so violent if the locomotive had been so equipped." The report concludes with the recommendation "that the New York Central provide crown-sheet protection in case of low water by installing suitable devices for that purpose."

Grain Elevator Dealers Protest Method of Distributing Cars

Approximately 250 grain dealers and railway officers, interested in the movement of grain from Minnesota, the Dakotas and Montana, responded to the call of the Northwest Shippers Advisory Board for a special meeting at St. Paul on September 30 to consider means for distributing more equitably the cars available for the transportation of this season's unusually large crop of wheat and flax much of which the farmers are storing on the ground because of the "plugging" of the country elevators. The meeting was called in response to widespread complaint from elevator operators against the application of Rule 10 of the Car Service division, a rule that was drafted in 1920 but which has since been inoperative because of lack of necessity therefor. This rule, which is now being enforced because of the inadequacy of the supply of cars in this area, provides that cars shall be allotted to elevators in wheat-growing districts in the order in which those elevators request cars, until the elevators become blocked, after which cars are allotted on a pro rata basis depending on the shipments made in the previous ten days.

Operators of farmers mutual and independently owned elevators, more than 100 of whom were present at the hearing, contend that when the elevators become blocked, this rule reacts to their detriment, in competition with the "line" or multiple-ownership and the smaller elevators and many of them testified at the meeting that, although they normally handle from two to six times the volume of grain handled by competing elevators at the same station they were now receiving no more cars than these competitors, resulting in driving grain from their elevators to others that have not heretofore received it. Numerous cases were cited where farmers,

pressed for money to pay obligations or to buy bonds, and desirous of avoiding deterioration from ground storage, are trucking their grain from town to town until they can find an open elevator, sometimes involving a haul of as much as 40 to 50 miles.

Opposition to the demand for the revision of this rule was confined to two or three representatives of "line" elevators who questioned the authority of the railways to make the change requested, as being in conflict with certain state laws and decisions of the Interstate Commerce Commission.

At the conclusion of an all-day discussion, the Advisory Board adopted a resolution petitioning the Car Service division to revise the "blocked elevator" provision of Rule 10 immediately, to provide that when elevators are blocked, cars shall be distributed to these elevators in proportion to the number loaded out by each elevator in the preceding grain year.

Rail Co-ordination Helps Increase Air Express

There were 191,850 shipments handled in combined rail and air express service in the first six months of 1943, an increase of 34.7 per cent over the comparable 1942 period, according to the Railway Express Agency. On this traffic, express charges, either originating at or destined to an off-airline point, or moved part way by rail, increased 106.8 per cent over the similar period in 1942.

In June, rail-air express shipments handled totaled 32,973, or 26.6 per cent over June, 1942, with express charges on this traffic being up 81.8 per cent for the month.

Largely responsible for these increases has been the combined rail and air service by factories or plants located at non-airport offices. Movement of this cargo is expedited by the co-ordination of air and rail schedules linking 23,000 off-airline offices of Railway Express with 350 airport cities in the United States and Canada.

Representation of Employees

The Railroad Workers Industrial Union, District 50, United Mine Workers of America, has supplanted the American Federation of Labor's International Brotherhood of Firemen, Oilers, Helpers, Roundhouse and Railway Shop Laborers as the Railway Labor Act representative of power house employees and railway shop laborers employed by the Baltimore & Ohio Chicago Terminal. The U.M.W. affiliate won by a vote of 86 to 16 in a recent election which has been certified by the National Mediation Board.

In other recent elections, the Railroad Yardmasters of America have supplanted the Brotherhood of Railroad Trainmen as the representative of yardmasters employed by the Northern Pacific Terminal of Oregon, and retained the right to represent Seaboard Air Line yardmasters in the face of a challenge from the B. of R. T. Meanwhile patrolmen (special officers) in the N.P.T.O. police department have chosen the A. F. of L.'s National Council of Railway Patrolmen's Unions; the clerical and office employees of the Chicago Railroad Freight Collection Association have chosen

the Brotherhood of Railway Clerks; and the International Longshoremen's Association has supplanted the Marine Engineers Beneficial Association as the representative of Lehigh Valley marine engineers, firemen and oilers.

Equipment and Supplies

More Freight Cars Released for Building by WPB

The War Production Board has authorized the building of an additional number of freight cars out of steel allocated for the final months of this year and to be allotted for the first six months of 1944. Included in the WPB's latest releases are the Alton's order for 250 50-ton gondola cars placed with the General American Transportation Corporation; the Atchison, Topeka & Santa Fe order for 100 caboose cars with the railroad's own shops; the Detroit, Toledo & Ironton order for 100 70-ton gondola cars with the Greenville Steel Car Company; the Great Northern's order for 600 50-ton box cars with the railroad's own shops; the Gulf, Mobile & Ohio order for 125 50-ton hopper cars with the American Car & Foundry Co.; the orders by the New York, Chicago & St. Louis for 500 50-ton hopper cars from American Car & Foundry, 300 50-ton box cars from General American and 50 70-ton gondola cars from Greenville; the New York, New Haven & Hartford's order for 100 70-ton flat cars from Greenville; the Pere Marquette order for 100 70-ton flat cars and 100 70-ton gondola cars with Greenville; a new order for five cabooses by the Pittsburg & West Virginia with the railroad's own shops; a new order by the Spokane, Portland & Seattle for four 50-ton dump cars with the Western-Austin Company; the Terminal of St. Louis order for 35 caboose cars with the Mount Vernon Car Manufacturing Company; a new order by the National Car Company for 17 50-ton flat cars placed with the Fruit Growers Express; and a new order by the General Electric Company for eight drop-center flat cars placed with the Maine Central.

LOCOMOTIVES

The TENNESSEE CENTRAL is inquiring for four steam locomotives of 2-8-4 or 2-8-2 type wheel arrangement.

The ALTON has been authorized by the United States district court at Chicago to purchase 10 Diesel-electric locomotives.

The PATINO MINES, Bolivia, S. A., has placed an order for one steam locomotive of 2-6-0 wheel arrangement with the Vulcan Iron Works.

IRON AND STEEL

THE CHICAGO, INDIANAPOLIS & LOUISVILLE has been authorized by the Federal District Court at Chicago to purchase 4,900 gross tons of rails and fastenings at an estimated cost of \$328,000.

Construction

MISSOURI PACIFIC.—A contract has been awarded R. G. Aldridge, Kansas City, Kan., for moving about 40,000 cu. yd. of rock to fill in slides along the Arkansas river, which occurred last May two miles north of Ozark, Ark. The total cost of this project will be about \$50,000.

MISSOURI PACIFIC.—A contract has been awarded the W. J. Menefee Construction Company for approximately 150,000 cu. yd. of grading near Wooldridge, Mo., to raise the grade about five feet on an offset line to a point two feet above the June, 1943, level of the Missouri river. The total cost of the project including ballasting and bridge work will be about \$200,000.

MISSOURI PACIFIC.—A contract will soon be awarded V. N. L. Sherwood, Independence, Kan., for filling bridge No. 99 near Nevada, Mo. The bridge, which is 241 ft. long and 38 ft. high, will be replaced by a 12-ft. by 14-ft. concrete culvert 106 ft. long. The work will permit some reduction of grade into the south end of the Nevada yard and greatly improve switching operations. The total cost of the improvement will be about \$22,000.

MISSOURI PACIFIC.—Two contracts totaling approximately \$345,000 have been awarded for a line change about 2.3 miles long near Riverton, La., which will include the construction of a bridge 942 ft. long over the Ouachita river. The contract for the grading, which will total about 447,500 cu. yd. and includes excavating a diversion ditch for Bayou Duchesne, 22 acres of clearing and 18 acres of grubbing, has been awarded the R. J. Reid Contracting Company, Birmingham, Ala. A contract for four mass concrete piers on timber pile foundations for the new bridge, has been awarded Robinson & Young, Baton Rouge, La. The bridge will have three 165-ft. single-track through-truss spans, including a center vertical lift span.

MISSOURI PACIFIC.—Three contracts have been awarded Bilhorn, Bower & Peters, Inc., for grading work. One contract covers approximately 30,000 cu. yd. of grading in connection with raising the track near Cole Junction, Mo., above the June, 1943, high water level of the Missouri river; the total cost of this work will amount to about \$50,000. A second contract was awarded for approximately 30,000 cu. yd., of grading for widening and raising the embankment near Arve Spur, Mo. The total cost of this project, including ballasting and bridge work, will approximate \$40,000. The third contract was awarded for approximately 55,000 cu. yd. of grading for raising the track approximately 5 ft. on an offset line near Lupus, Mo., to an elevation above the recent high water level of the Missouri river. The total cost of this project, including drainage improvements, ballasting and bridge work, will be about \$100,000.

NORTHERN PACIFIC.—This road has awarded a contract, amounting to \$1,450,-

000, to the Austin Company, Seattle, Wash., for the construction of an addition to the road's locomotive shops at Livingston, Mont., following approval of the War Production Board. The program includes the building of a locomotive machine shop, a maintenance equipment repair shop, a two-story storehouse and shop office with a basement, a lumber shed, and an extension to transfer table and pit.

WAR DEPARTMENT.—The U. S. Engineer office, Dayton, Ohio, has awarded a contract, amounting to about \$30,000, to A. Farnell Blair, Decatur, Ga., for the construction of railroad tracks and additional housing in Ohio.

Supply Trade

A. C. Lamperti has been appointed secretary and comptroller of the **Graybar Electric Company** to succeed **M. E. Wagner** who has retired after 45 years of service with the company.

The **Eppinger & Russell Co.**, New York, has acquired the wood preserving plant formerly operated by the Norfolk Creosoting Company at Money Point, Norfolk, Va.

William F. Cremean, who has been associated with the **Wine Railway Appliance Company** for 25 years, has been relieved of his duties as works manager but will continue with the company in a consulting capacity. **N. E. Weiffenbach**, formerly supervisor of the car department for the Wheeling & Lake Erie has joined the engineering department of the Wine Railway Appliance Company.

OBITUARY

George T. Ladd, chairman of the board of the Woodings Forge & Tool Co., and the Woodings-Verona Tool Works, and president of the United Engineering & Foundry Co., died on October 3, at Pittsburgh, Pa., after an extended illness.

Clifford E. Ward, in charge of railroad sales of the U. S. Engine & Pump Co., Chicago, died in that city on September 28. Mr. Ward was vice-president of the Bridge and Building Supply Men's Association in 1937 and was a director of the National Railway Appliances Association from 1940 to 1943.

Abandonments

ALTON.—This road has applied to the Interstate Commerce Commission for authority to abandon a branch from Carrollton, Ill., to East Hardin, 19.4 miles.

DETROIT & MACKINAC.—Division 4 of the Interstate Commerce Commission has authorized this road to abandon a branch line from National City, Mich., to Prescott, 11.8 miles.

Financial

CHESAPEAKE & OHIO.—*Capital Readjustments.*—On October 6 directors of the Chesapeake & Ohio authorized a capital readjustment which would give \$10 par value of preference stock to each share of common stock, subject to approval by the Interstate Commerce Commission, as a step toward possible eventual merger with its subsidiaries. There are 7,657,358 shares of common stock outstanding.

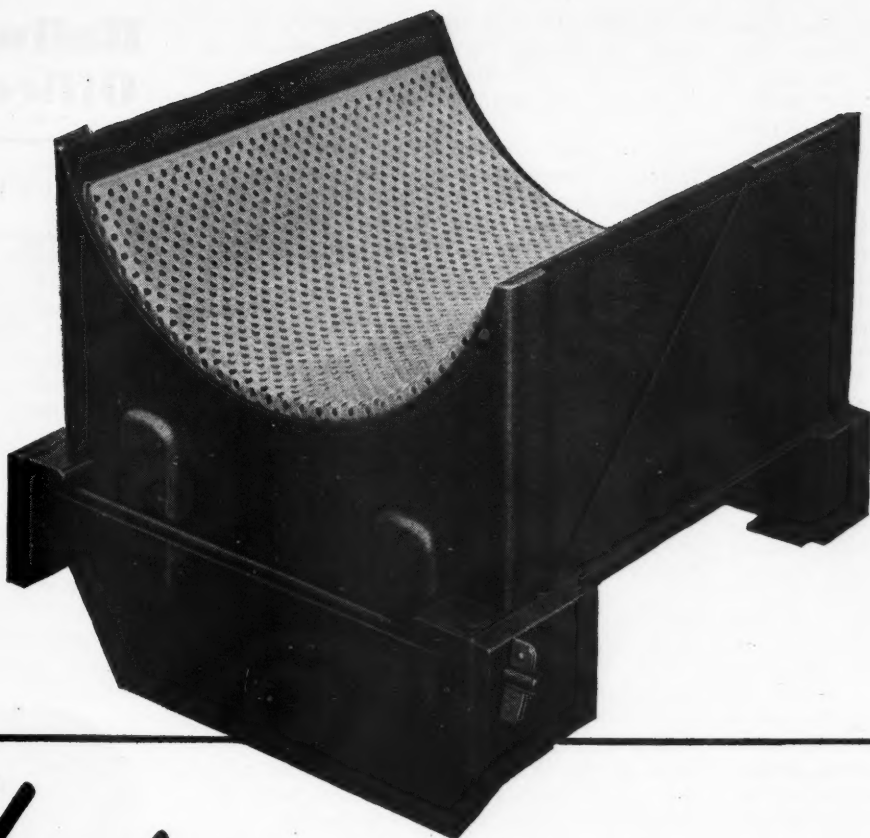
CHICAGO & NORTH WESTERN.—*Reorganization.*—A three-judge federal court, at Chicago on September 30, decided that it lacked jurisdiction to order the Interstate Commerce Commission to re-open reorganization proceedings for the Chicago & North Western. The judges acted upon a petition which contended that the present re-organization plan, approved June 27, 1941, does not afford due recognition to the rights of each class of security-holders and has been outmoded by financial changes brought about by the war. Under the present plan, preferred and common stockholders have no equity.

CHICAGO, ROCK ISLAND & PACIFIC.—*Modified Reorganization Plan.*—The Interstate Commerce Commission has received from counsel for this road a brief proposing modifications of its reorganization plan, recently returned to it by the federal court for further consideration of specific points. The proposed modifications would employ the road's accumulated cash resources for debt retirement and satisfaction of claims, so improving the position of holders of various classes of securities, and would change the effective date of the reorganization. Committees representing various classes of securities filed briefs in support of or in opposition to the road's proposal.

CHICAGO, ROCK ISLAND & PACIFIC.—*Sale of Collateral.*—Upon motion by the Chase National Bank of New York, the Federal District Court at Chicago on October 4, vacated an injunction entered November 22, 1933, restraining the bank from disposing of collateral securing its loan to the Rock Island. The amount of the original indebtedness, according to the petition, was \$2,000,000, secured by \$3,253,000 in first and refunding mortgage bonds and \$3,956,000 in first mortgage bonds of the St. Paul & Kansas City Short Line. The principal amount of the promissory note was reduced to \$1,969,454 on August 1, 1934 by application of coupon collections of the first and refunding mortgage bonds. According to the petition, the value of the collateral is now \$2,151,500 and the bank's total claim amounts to \$3,167,653.

On September 24, the court dissolved an injunction issued on November 22, 1933, forbidding the New York Trust Company from selling bonds with a book value of \$1,810,000 held as collateral for a \$500,000 loan. The unpaid interest plus principal of the loan totaled \$769,913 while the value of the securities was placed at \$496,287.

COLORADO & SOUTHERN.—*Bond Tenders Asked.*—On October 4 the Fort Worth & Denver City invited tenders from hold-



Here's ONE ENGINE MAINTENANCE JOB THAT CAN BE HANDLED MORE EASILY THIS WAY!

Never has proper lubrication of locomotive driving boxes been more essential. And never have railroad maintenance men been more pressed for time to handle the jobs that must be done!

The Franklin No. 8 Driving Box Lubricator and Spreader cures this situation. It insures constant lubrication to aid locomotives to render maximum service. It speeds up the whole task of lubricating driving boxes. When new lubricant is needed, just take out the spent cellar — it can't jam, and no tools are needed — replace it with a filled one. Repack the first cellar at the bench for future use.

FRANKLIN RAILWAY SUPPLY COMPANY, INC. NEW YORK CHICAGO

In Canada: FRANKLIN RAILWAY SUPPLY COMPANY, LIMITED, MONTREAL

October 9, 1943

ers of the first mortgage 4½ per cent, series A, bonds of its parent company, the Colorado & Southern, at \$48 plus interest of \$2.83 for each \$100 principal amount. The railroad purchased \$4,171,000 of these bonds, at an average price of \$47.50 for each \$100 principal amount, in July.

DELAWARE, LACKAWANNA & WESTERN.—Utica, Chenango & Susquehanna Valley Merger.—Conferees representing the Delaware, Lackawanna & Western and its leased line, the Utica, Chenango & Susquehanna Valley have approved the principal elements of a plan for merger of the two railroads designed to settle pending and future tax problems and reduce the Lackawanna's fixed charges. The proposed plan provides that the \$3,703,900 of capital stock of the Utica, Chenango held by others than the Lackawanna be exchanged for Lackawanna bonds bearing three per cent fixed interest plus two per cent interest contingent on the system's earnings and certain other contingent charges. The bonds would be a first lien on the properties of the Utica, Chenango.

ERIE.—Merger of Subsidiary.—Division 4 of the Interstate Commerce Commission has authorized the merger of the properties of the Nyack & Southern into the Erie, which controls it through ownership of its capital stock.

FLORIDA EAST COAST.—Reorganization Plan Opposed.—Holders of \$45,000,000, face value, of first and refunding five per cent bonds of the Florida East Coast have asked the United States district court at Jacksonville, Fla., to disapprove a plan of reorganization under which they would receive \$4,500,000 in new bonds plus stock in the reorganized company. Committee representing the bondholders contended that when the plan was formulated the railroad had on hand about \$2,000,000, but that due to increased earning it would have about \$14,500,000 on hand at the end of the year. It was proposed that \$12,000,000 in first mortgage bonds be paid off instead of being replaced by extended maturity bonds so as to dispose of any questions of priority between first mortgage bonds and the first and refunding five per cent bonds. A representative of the Florida du Pont group, which hold a majority of the latter bonds, also urged that the plan be re-submitted to the I.C.C. for revision.

MISSOURI PACIFIC.—Reorganization Proceeding.—Division 4 of the Interstate Commerce Commission has directed the reopening of its Finance Docket 9918 proceeding involving the reorganization of this road, following the order of the federal district court referring the proposed plan back to the commission for consideration of modifications or of new plans. The compromise plan proposed by the road, the Alleghany Corporation and committees representing certain securities was accepted under this order. Details of the compromise plan were outlined in *Railway Age* of October 2, page 537.

Evidence relating to the compromise plan or to modification of the commission's plan will be received at a hearing before Oliver

E. Sweet, director of the Bureau of Finance, and Examiner R. H. Jewell, beginning at 9:30 a.m. October 19 at the Hotel St. George, Brooklyn, N. Y.

NEW YORK CENTRAL.—New York & Harlem Financing.—At a special meeting on September 29, stockholders of the New York Central approved the necessary modification of the lease of the New York & Harlem so as to acquire the outstanding minority stock of that railroad on the basis of \$125, principal amount, of new mortgage bonds of the Harlem for each share of the minority stock offered in exchange. The Interstate Commerce Commission and the Harlem have already approved the terms. To assure the offer becoming effective, 52,560 shares of Harlem stock must be deposited before November 1. The New York Central's stockholders also approved amendments of the leases made by the Toledo & Ohio Central and the Hudson River Connecting and the purchase of the properties and franchises of the St. Joseph, South Bend & Southern.

WHEELING & LAKE ERIE.—C. & O. May Buy Stock.—On September 29, Robert R. Young, chairman of the board of the Chesapeake & Ohio and the Alleghany Corporation, commenting on the decision of the Interstate Commerce Commission denying the application of the New York, Chicago & St. Louis to purchase 60,000 common shares of the Wheeling & Lake Erie, stated in part, "In 1941 the Commission approved joint control through ownership of certificates of deposit of the Wheeling & Lake Erie by the Chesapeake & Ohio and Nickel Plate. That decision necessarily involved a determination by the Commission that the relationship between the companies was consistent with the public interest. Today's decision would seem to be inconsistent with the 1941 decision. If it is the financial position of Nickel Plate and its accumulated preferred dividends which is in question then this phase of the problem can be avoided by the acquisition of the stock by Chesapeake & Ohio rather than by Nickel Plate and counsel are giving consideration to this possibility." On September 28 Blyth & Co. of New York had announced the purchase of the 60,000 shares of the W. & L. E. and said a public offering of the stock was contemplated. (For previous item see *Railway Age* of October 2, page 546.)

Average Prices Stocks and Bonds

	Oct. 5	Last week	Last year
Average price of 20 representative railway stocks..	37.27	37.02	29.49
Average price of 20 representative railway bonds..	79.51	79.51	68.53

Dividends Declared

Atchison, Topeka & Santa Fe.—\$1.50, payable December 1 to holders of record October 29.
 Norfolk & Western.—Adj. preferred, \$1.00, payable November 10 to holders of record October 22.
 Oahu Railway & Land.—50c, irregular, payable September 11 to holders of record September 5.
 Piedmont & Northern.—50c, quarterly, payable October 20 to holders of record October 5.
 Reading.—25c, quarterly, payable November 11 to holders of record October 21.
 Wilton.—\$1.75, semi-annually, payable October 1 to holders of record September 17.

Railway Officers

EXECUTIVE

Herbert A. Greeniaus, superintendent, Ontario district, of the Canadian Pacific, with headquarters at Toronto, Ont., has been appointed assistant to the vice-president, Western lines, with headquarters at Winnipeg, Man. He succeeds **C. E. Stockdill**, whose appointment as assistant to vice-president of the Canadian Pacific with headquarters at Montreal, Que., was announced in the *Railway Age* of October 2. Mr. Greeniaus' career on the Canadian Pacific started in 1911 when he was a clerk in the office of the general superintendent at Toronto. In 1919 he became assistant chief clerk to the vice-president of that road, with headquarters at Montreal, and from 1924 to 1930 he served as chief clerk to the vice-president. He became assistant to the

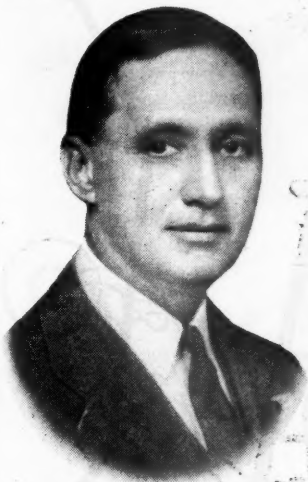


Herbert A. Greeniaus

vice-president and general manager, Eastern lines, in 1934. This post he held, except for a brief period as acting general superintendent at St. John, N. B., until his advancement in 1941 to the office of general superintendent of the Ontario district. He served in this latter position until his appointment as assistant to the vice-president, Western lines, at Winnipeg.

Marion J. Wise, assistant to the president of the Southern Pacific at San Francisco, Cal., has resigned from that post to accept the dual position of vice-president in charge of development of the Central of Georgia and president of the Ocean Steamship Company of Savannah (a subsidiary of the Central of Georgia) with offices at Savannah, Ga., to which he was recently elected. The position of vice-president, development, is a newly created one. Born on August 16, 1883, at St. Louis, Mo., Mr. Wise entered railway service in 1901 as a clerk in the general freight traffic office of the office of the Mobile & Ohio (now Gulf, Mobile & Ohio). From that time until 1911 he served the Mobile & Ohio successively as clerk in the general manager's office at St. Louis, Mo., secretary to the

general manager, and chief clerk to the superintendent of transportation at Mobile, Ala., and chief clerk to the general manager at Mobile. In 1911 he joined the Southern as superintendent in Mississippi with headquarters at Columbus, Miss., returning to the Mobile & Ohio in 1913 as assistant to the general manager of that



Marion J. Wise

road and the Southern, at Mobile. During World War I he was staff officer in charge of operations of those two roads, as well as of the Gulf, Mobile & Northern (now Gulf, Mobile & Ohio). He was stationed at Washington, D. C., from 1920 to 1923, serving as director of material and supplies for the United States Railroad Administration. From 1923 to 1926 Mr. Wise served as an officer on the staff of the president of the Southern Pacific, first at San Francisco and later at Houston, Tex. During the latter year he became assistant to the vice-chairman of the executive committee of the board of directors of the Southern Pacific at New York, remaining at that post until 1932 when he was appointed assistant to the president of the Southern Pacific at San Francisco. Mr. Wise has been a member of the board of directors of several subsidiary companies of the Southern Pacific Railway Express Agency, and the Pacific Fruit Express Company, as well as a member of the executive committee of the Texas & New Orleans, and president of the Southern Pacific Land Company. In his new position as vice-president, development, of the Central of Georgia and president of the Ocean Steamship Company of Savannah, Mr. Wise's activities will be devoted to the industrial and general development of the Central of Georgia's territory, looking toward the post-war period, and in arranging for the resumption of service, now temporarily suspended, by the Ocean Steamship Company.

James Farrand Pringle, general manager of the Atlantic region of the Canadian National at Moncton, N. B., has also been appointed to the position of vice-president of the Atlantic region, succeeding **Walter U. Appleton**, who has retired under the provisions of the company's pension regulations. A photograph of Mr. Pringle and a biographical sketch of his railway career appeared in the *Railway Age* of

January 30, page 304. Mr. Appleton was born at Moncton on January 29, 1878, entering the service of the Intercolonial (now Canadian National) as a junior clerk in October, 1890. Until October, 1913, he served successively as machinist's apprentice, machinist, chief clerk, assistant to the superintendent of motive power and as general master mechanic of the Intercolonial. When the Intercolonial became part of the Canadian Government Railways, Mr. Appleton, in February, 1918, was appointed superintendent of motive power, and in December of the same year became mechanical superintendent. With the amalgamation of the Canadian Government Railways and the Canadian National System, Mr. Appleton was appointed general superintendent of rolling stock in 1920. In 1923 he became general superintendent of the Atlantic region. Mr. Appleton was appointed general manager of the Atlantic region in 1924, and in 1935 also became vice-president of that region, with headquarters at Moncton. Owing to the pressure occasioned by wartime traffic in the Maritime provinces of Canada served by the Canadian National, Mr. Pringle in January took over the duties of general



Walter U. Appleton

manager of the Atlantic region, while Mr. Appleton continued to serve as vice-president of that region until his recent retirement.

LeRoy T. Wilcox, general freight traffic manager of the Union Pacific, has been promoted to assistant vice-president, traffic, with headquarters as before at Omaha, Neb. **Ambrose J. Seitz**, freight traffic manager, has been advanced to general freight traffic manager, with headquarters as before at Omaha, succeeding Mr. Wilcox.

Mr. Wilcox was born in Chicago on May 30, 1876, and entered railway service on January 1, 1891, as a mail boy on the Chicago, Rock Island & Pacific. He subsequently held various positions in the general freight office of the Rock Island at Chicago, and in 1898 he was appointed chief clerk at Kansas City, Mo. In March, 1901, he went with the Union Pacific-Southern Pacific as a rate clerk at Kansas City and was subsequently appointed assistant

chief clerk and export and import agent. In November, 1906, Mr. Wilcox was transferred to the office of the traffic director as rate, tariff and statistical clerk, and 11 years later he became traffic assistant to the interstate commerce attorney in a newly created department, continuing in that capacity until July 1, 1918, when he was ap-



LeRoy T. Wilcox

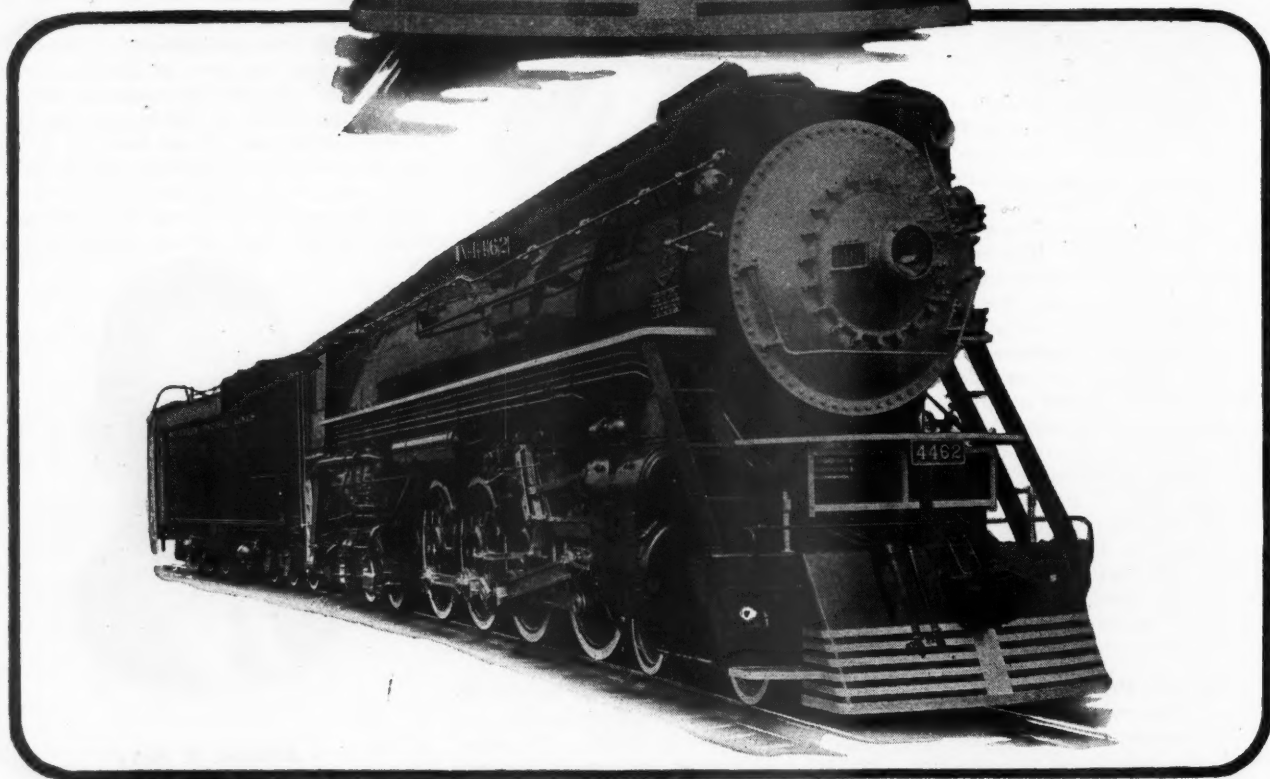
pointed a traffic assistant in the Central Western region of the United States Railroad Administration. He returned to the Union Pacific on March 1, 1920, as assistant to the commerce counsel, and two months later he was advanced to assistant to the freight traffic manager, in charge of commerce work, a position he held until February 1, 1927, when he was promoted to assistant freight traffic manager, with headquarters at Omaha. In March, 1940, he was advanced to the position he held at the time of his new appointment.

Mr. Seitz was born at Effingham, Ill., on October 28, 1897, and entered railway service on March 18, 1914, with the Missouri Pacific, leaving this company a few years later to serve with the United States government during the World War. During this period, he served as confidential clerk to the chief of the Inland Traffic



Ambrose J. Seitz

Service of the War department at Washington and chief clerk to the traffic assistant, Southwestern region, United States Railroad Administration at St. Louis, Mo. From October 1, 1919, to August 1, 1920, Mr. Seitz held the position of clerk to the



LIMA LOCOMOTIVE WORKS,

The 60th LIMA 4-8-4 *General Service Locomotive*

Delivered to the

SOUTHERN PACIFIC

The dull war-time dress of the 10 new 4-8-4 type General Service locomotives recently delivered by Lima to the Southern Pacific is symbolic of the war activity of this great system.

The tremendous importance of the West Coast in all phases of the war effort has placed a staggering load on its transportation facilities. A major part of the burden falls on the Southern Pacific Lines.

A progressive motive power policy, however, has made it possible for the Southern Pacific to keep abreast even of these demands — the greatest in its long history.

LOCOMOTIVE CHARACTERISTICS

Weight on Drivers	283,200
Weight of Engine	468,400
Cylinders (2)	27 x 30 Ins.
Diameter of Drivers	73½ Ins.
Boiler Pressure	260 Lbs.
Tender Capacity (Fuel)*	6,080 U. S. Gals.
Tender Capacity (Water)	23,200 U. S. Gals.

INCORPORATED, LIMA, OHIO

vice-president in charge of traffic of the Union Pacific System at Omaha, then becoming secretary to Colonel D. C. Jackling, industrialist of San Francisco, Cal. On March 1, 1922, he returned to the Union Pacific as freight traffic agent at San Francisco, being appointed general agent in the freight department at Salt Lake City on September 1, 1925. On July 1, 1929, he was further advanced to assistant to the freight traffic manager, with headquarters at Omaha, being appointed general agent in the freight department at New York City on January 1 of the following year. On May 1, 1935, Mr. Seitz was appointed general freight agent at Kansas City, his title being changed to general freight and passenger agent four months later. On January 1, 1936, he was promoted to assistant traffic manager, with headquarters at Salt Lake City, and in February, 1940, he was advanced to the position he held at the time of his new appointment.

FINANCIAL, LEGAL AND ACCOUNTING

William F. Hanlon has been appointed to the newly created position of assistant general solicitor of the Central of New Jersey, with headquarters at New York.

Robert W. Purcell has been appointed acting general counsel of the Chesapeake & Ohio, with headquarters at Cleveland, Ohio.

C. C. Wimmer, whose appointment as auditor of the Seaboard Air Line, with headquarters at Portsmouth, Va., was announced in the *Railway Age* of September 18, was born on September 10, 1889, at Hagerstown, Ind. In 1906 he entered railroad service as a ticket clerk at the Indianapolis, Ind., Union station. In 1912 Mr. Wimmer entered the service of the Seaboard Air Line at Tampa, Fla., where he served successively as claim clerk, collector and accountant of the freight agency. He became miscellaneous revenue clerk in the office of the auditor of freight accounts at Portsmouth in 1915 and in 1919 was appointed accountant in the comptroller's office at Portsmouth. His subsequent career on the Seaboard Air Line included the successive positions of auditor of subsidiary lines, assistant to the auditor of freight accounts, and assistant auditor of revenues. In 1939 he was appointed assistant general auditor, in which capacity he served until his recent appointment as auditor with headquarters at Portsmouth.

W. Scott Ure, assistant general auditor of the Union Pacific, has been promoted to senior assistant general auditor, with headquarters as before at Omaha, Neb., succeeding **Harry S. Walker**, who has retired.

Mr. Ure was born at Salt Lake City, Utah, on September 23, 1888, and entered railway service on July 14, 1905, on the Oregon Short Line (now part of the Union Pacific system) at Salt Lake City, serving in various clerical positions in the passenger and freight accounting departments. In June, 1916, he was promoted to special accountant and on March 1, 1920, he was advanced to auditor of miscellaneous accounts.

On April 1, 1930, Mr. Ure was promoted to assistant treasurer of the O. S. L. and on January 19, 1936, he was transferred to Omaha as auditor of station accounts for the Union Pacific system. On April 24, 1939, he was appointed assistant treasurer, with headquarters at Omaha, and in 1941 he was promoted to the position he held at the time of his new appointment.

Mr. Walker was born in Princess Anne County, Va., on July 19, 1878, and attended Norfolk Academy, Norfolk, Va. He entered railway service on July 1, 1900, on the Seaboard Air Line and in May, 1904, he went with the Gulf and Ship Island (now part of the Illinois Central System), as an agent at Gulfport, Miss., later serving as secretary-treasurer of Foote & Mohler, wholesale grocers at that point and secretary-manager of the Gulfport Woodworking Company. In September, 1907, he returned to railroad service as an accountant for the Gulf & Ship Island at Gulfport, and a year later he went with the Southern Pacific Lines in Texas and Louisiana as an assistant traveling auditor at New Orleans, La., later serving that road as head clerk of



W. Scott Ure

station accounts, head clerk of general accounts, both at New Orleans, and head clerk of disbursement accounts at Houston, Tex. In May, 1913, Mr. Walker was promoted to auditor for the lines in Louisiana, with headquarters at New Orleans, and in February, 1917, he was appointed assistant auditor for the lines in Texas with headquarters at Houston. On July 1, 1920, he went with the Union Pacific as assistant to the general auditor at Omaha and in April, 1940, he was advanced to assistant general auditor. In 1941 he was promoted to the position he held at the time of his retirement.

OPERATING

R. O. Bodell, assistant trainmaster of the Illinois Central at Waterloo, Iowa, has been promoted to trainmaster in charge of the Waterloo and Albert Lea districts and the Stacyville branch, with the same headquarters, a newly created position.

L. B. Kendall, acting assistant general manager, eastern district of the Chicago and North Western, has been promoted to

assistant general manager, eastern district, succeeding **William A. Kraemer**, who has retired due to ill health.

R. B. Corrigan, superintendent of the Levis division of the Canadian National at Levis, Que., has been transferred to the Cochrane division, with headquarters at Cochrane, Ont., and **J. A. Trudel**, superintendent of the Cochrane division at Cochrane has been transferred to the Levis division, with headquarters at Levis.

TRAFFIC

J. N. Hanes, chief clerk in the passenger traffic department of the Norfolk & Western, has been appointed to the newly created position of general baggage agent of that road, with headquarters at Roanoke, Va.

H. E. Johnson has been appointed general agent of the St. Louis Southwestern, with headquarters at Denver, Colo., succeeding **C. E. Nash**, whose death on September 26 is reported elsewhere in these columns.

Matthew A. Murphy, general agent of the Atchison, Topeka and Santa Fe at Minneapolis, Minn., has been promoted to general freight agent of the Panhandle & Santa Fe, with headquarters at Amarillo, Tex., succeeding **H. H. Nye**, who has retired.

J. W. Stevenson, assistant passenger traffic manager of the Illinois Central, who has served for the past six months as assistant director of the passenger section in the division of traffic movement of the Office of Defense Transportation, Washington, D. C., has returned to the Illinois Central at Chicago.

F. H. N. Heeman, general freight agent of the Western Maryland with headquarters at Baltimore, Md., has been appointed assistant freight traffic manager of that road succeeding **T. Herbert Fee**, whose death was reported in the *Railway Age* of September 25. **W. C. Schafer**, will serve as general freight agent at Baltimore replacing Mr. Heeman.

ENGINEERING & SIGNALING

J. A. Holbrook, assistant mechanical and electrical engineer of the New York Central, has been appointed mechanical engineer, Line East, with headquarters at New York, succeeding **W. L. Curtiss**, retired. **E. R. Tattershall**, supervisor of structures, electric division, has been appointed superintendent, maintenance of equipment, at New York.

G. N. Edmondson, engineer, maintenance of way, of Line East, New York Central, retired on September 30 after 42 years of service. Mr. Edmondson had been on a leave of absence because of illness since June of this year and **John H. Kelly** has been serving as engineer, maintenance of way, Line East. A biographical sketch of Mr. Kelly appeared at the time of his appointment in the "Railway Officers" columns of the *Railway Age* of July 17. Mr. Edmondson, who was born at New

SECURITY



CIRCULATORS

- for increased locomotive availability
- for better Arch Brick support
- for Positive Flow of Water over CENTER of Crown Sheet
- for Reduced Honeycombing • for Reduced Flue Plugging
- for Reduced Cinder Cutting

AMERICAN ARCH COMPANY, INC.

60 East 42nd Street, New York 17, N.Y.

SECURITY CIRCULATOR DIVISION

Haven, Conn., on August 22, 1879, entered the service of the New York Central in July, 1901, in the engineering corps. In July, 1903, he became assistant supervisor of track and subsequently, supervisor of track. He served as assistant engineer and assistant engineer of track of the Hud-



G. N. Edmondson

son and New York divisions from November, 1905, to May, 1907, when he became supervisor of track at West Albany, N. Y. In March, 1910, Mr. Edmondson was appointed assistant division engineer at Utica, N. Y., and was promoted to division engineer at Rochester, N. Y. in April, 1911, being transferred to Jersey Shore, Pa., in 1918, and to Albany, N. Y., in June, 1920. He was appointed engineer of track at New York in October, 1927, and was promoted in June of last year to engineer, maintenance of way, Line East, a position which he held at the time of his retirement.

L. L. Adams, engineer maintenance of way of the Louisville & Nashville, has been promoted to assistant chief engineer, with headquarters as before at Louisville, Ky. Edward Wise, Jr., has been appointed engineer maintenance of way, with headquar-



L. L. Adams

ters at Louisville, succeeding Mr. Adams. Mr. Adams was born at Harrodsburg, Ky., and graduated from the Kentucky State University in civil engineering in 1911. He entered the service of the L. & N. in May of the same year as a rodman in the construction department, serving in this posi-

tion and as an inspector, assistant resident engineer, and resident engineer until May, 1913. At that time he entered the office of the chief engineer as a draftsman, and after a year in this capacity he was appointed assistant engineer on maintenance, with headquarters at Nashville, Tenn. In May 1917, Mr. Adams enlisted in the United States Army, being commissioned a captain and serving in France with the Eighty-second Division Engineers for 11 months. On July 9, 1919, he returned to the L. & N. as an assistant engineer in the chief engineer's office, being appointed headquarters supervisor in the roadmaster's office at Ravenna, Ky., on October 1 of the same year. In July, 1920, he was promoted to roadmaster, with headquarters at Etowah, Tenn., and was transferred to Louisville, Ky., on Feb. 1, 1925. He was advanced to division engineer, with headquarters at Evansville, Ind., on July 1, 1931, and in April, 1936, he was promoted to the position he held at the time of his new appointment, effective October 1.

William V. Kerns, assistant supervisor of bridges and buildings of the Iowa division of the Chicago & North Western at Boone, Iowa, has been promoted to supervisor of wood preservation in charge of the tie and timber treating plant at Escanaba, Mich., succeeding H. L. Holderman, whose promotion to acting division engineer of the Black Hills division was reported in the *Railway Age* of July 24.

W. H. Huffman, acting division engineer of the Western division of the Chicago, St. Paul, Minneapolis & Omaha, has been promoted to division engineer of the Western division, with headquarters as before at St. Paul, Minn., succeeding J. G. Bock, who has been granted leave of absence at his own request. H. W. Jensen, acting division engineer of the Eastern division, has been advanced to division engineer of the Eastern division, with headquarters as before at St. Paul, Minn.

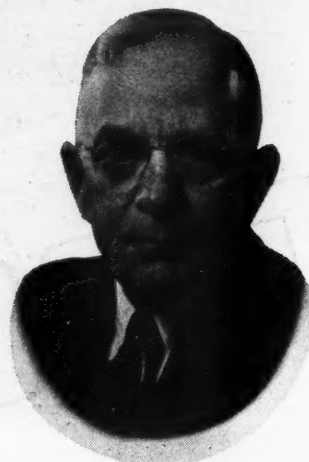
MECHANICAL

William Moore, assistant superintendent of motive power of the Erie, has been promoted to superintendent of motive power, with headquarters as before at Cleveland, Ohio, succeeding R. V. Blocker, who retired on October 1. W. A. Carlson, Western district master mechanic at Meadville, Pa., has been advanced to assistant superintendent of motive power, replacing Mr. Moore, and Edward Pool, division master mechanic at Hornell, N. Y., has been promoted to district master mechanic, succeeding Mr. Carlson. E. Branning, master mechanic of the Erie at Secaucus, N. J., has been transferred to Hornell, succeeding Mr. Pool. H. I. Phelps, master mechanic at Avoca, Pa., has been transferred to Secaucus, succeeding Mr. Branning, and F. D. Dunton has become master mechanic of the Erie at Avoca, succeeding Mr. Phelps.

O. J. Protz, superintendent of locomotive and car shops of the Chicago & North Western, has been promoted to superintendent of motive power, Northern district,

with headquarters as before at Chicago, succeeding Thomas F. Powers, whose promotion to chief mechanical officer was reported in the *Railway Age* of October 2. H. H. Thomas, assistant master mechanic of the Iowa and Northern Iowa divisions at Clinton, Iowa, has been advanced to superintendent of locomotive and car shops, succeeding Mr. Protz. F. L. Baker, master mechanic of the Galena division, has been appointed master mechanic of the Wisconsin and Madison divisions, with headquarters as before at Chicago, replacing Elmer Holmquist, who has retired, and W. A. Langlands, master mechanic of the Chicago Terminal division, has had his jurisdiction extended to the Galena division, with headquarters as before at Chicago.

Thomas F. Powers, whose promotion to chief mechanical officer of the Chicago & North Western, with headquarters at Chicago, was reported in the *Railway Age* of October 2, was born at Winona, Minn., on October 2, 1882, and entered railway service on May 1, 1899, as a water boy of the bridge and building department of the North Western at Winona. Two years later



Thomas F. Powers

he began serving his apprenticeship as a mechanic in the locomotive shops at Winona and in 1906 he was appointed a mechanic. In 1907 Mr. Powers became a mechanic of the Duluth, South Shore & Atlantic at Marquette, Mich., and in July, 1908, he returned to the North Western in the same capacity, being promoted to foreman at Chadron, Neb., one year later. In 1926 he was advanced to assistant superintendent of motive power and machinery, Northern district, and in December, 1941, he was promoted to superintendent of motive power, Northern district, with headquarters at Chicago, the position he held at the time of his new appointment, effective October 1.

Albert Edward Coleman, electrical superintendent of the St. Clair Tunnel at Port Huron, Mich., has been appointed to the newly established position of assistant superintendent of motive power of the Canadian National, Montreal terminals, Que. John Jackson Miller and Harold Winston Wreford are also serving in new positions at the Montreal terminals, having been appointed respectively, chief electrical

SYMBOLS

H_2O = Saturated
Steam



= Superheated
Steam

*Keep Abreast of Superheater
Development with Elesco*

A-1609

SUPERHEATERS • FEEDWATER HEATERS
AMERICAN THROTTLES • STEAM DRYERS
EXHAUST STEAM INJECTORS • PYROMETERS

THE
SUPERHEATER
C O M P A N Y

Representative of
AMERICAN THROTTLE COMPANY, INC.
60 East 42nd Street, NEW YORK
122 S. Michigan Blvd., CHICAGO

Montreal, Canada
THE SUPERHEATER COMPANY, LTD.

supervisor and electrical supervisor. Mr. Coleman was born and educated at Montreal, and entered railway service there. In 1919 he joined the Grand Trunk (now part of Canadian National), as electrician at Turcot, Que. He later worked in the Montreal motive power and car shops, and was



Albert Edward Coleman

transferred to Toronto, Ont., in 1923, becoming supervisor of unit cars in 1925. He was promoted to electrical superintendent of the St. Clair Tunnel in 1940, being located at Port Huron, Mich., until his appointment as assistant superintendent of motive power, Montreal terminals.

J. E. Goodwin, mechanical superintendent of the Southern district of the Missouri Pacific at St. Louis, Mo., has been appointed assistant chief mechanical officer, system of the Chicago & North Western, with headquarters at Chicago, a newly-created position. Mr. Goodwin entered railway service as a machinist's apprentice with the Atchison, Topeka & Santa Fe in 1917, and after completing his apprenticeship, resigned to enter college, studying engineering at Wake Forest College and the University of Chicago. He



J. E. Goodwin

reentered railroad service in 1925 as a machinist on the Missouri Pacific at Hoisington, Kan., and the following year he was promoted to roundhouse foreman. In 1929 he was appointed foreman of the backshop at Little Rock, Ark., later serving as acting superintendent for a short time and then

as general foreman. On January 28, 1941, Mr. Goodwin was advanced to master mechanic of the Palestine and San Antonio division of the International-Great Northern (part of the Missouri Pacific system), with headquarters at San Antonio, Tex., and in January 1, 1942, he was promoted to the position he held at the time of his new appointment. Mr. Goodwin is president of the Locomotive Maintenance Officers Association.

S. O. Rentschler, superintendent of shops of the Missouri Pacific at Sedalia, Mo., has been promoted to mechanical superintendent of the Southern district, with headquarters at St. Louis, Mo., succeeding **J. E. Goodwin**, who has resigned to accept service with another railroad. **C. R. Kilbury**, master mechanic of the Omaha-Northern Kansas and Kansas City Terminal divisions, has been advanced to superintendent of shops at Sedalia, replacing Mr. Rentschler. **C. L. Christy**, assistant master mechanic of the Kansas City Terminal division at Kansas City, Mo., has been promoted to master mechanic of the Omaha-Northern Kansas and Kansas City Terminal divisions, relieving Mr. Kilbury. **A. Walker**, assistant master mechanic of the Wichita division at Wichita, Kan., has been transferred to Kansas City, replacing Mr. Christy, and **J. Walker** has been appointed assistant master mechanic at Wichita, replacing Mr. A. Walker.

OBITUARY

C. E. Nash, general agent of the St. Louis Southwestern, with headquarters at Denver, Colo., died in that city on September 26.

Nathaniel S. Brown, who retired in 1942 as vice-president and general counsel of the Wabash, with headquarters at St. Louis, Mo., died at his home in that city on September 17. A biographical sketch of Mr. Brown was published in the *Railway Age* of October 19, 1942, at the time of his retirement.

J. E. Floyd, principal industrial engineer of the Rail Division, Transportation Corps, War Department, died recently in an airplane accident while traveling on a tour of duty. Mr. Floyd who was 68 years of age had been with the War Department since 1941. He was in railroad service for many years, having been a former assistant valuation engineer for the Great Northern and an assistant engineer with the Western Group of the Railroad Presidents' Conference Committee on Valuation.

Samuel L. Wonson, assistant chief engineer of the Missouri Pacific, with headquarters at St. Louis, Mo., died suddenly at his home in that city on October 1. Mr. Wonson was born at Gloucester, Mass., on July 1, 1877, and graduated from Harvard College in 1899 and from the Massachusetts Institute of Technology in 1901. He served as an instructor in the latter institution for one year and then went with the American Bridge Company as a draftsman and assistant engineer. In 1907 Mr. Wonson was appointed assistant bridge engineer of the National Railways of Mexico,

with headquarters at Mexico City. In 1910 he was appointed assistant bridge engineer of the Missouri Pacific and later he was promoted to bridge engineer. In 1924 Mr. Wonson was advanced to assistant chief engineer, with headquarters at St. Louis, and from 1932 to 1940 he served as acting chief engineer, with the same headquarters.

John O. Bell, who retired in 1934 as superintendent of transportation of the Chicago & Eastern Illinois, died in a Chicago hospital on September 30. Mr. Bell was born on July 16, 1865, near Sidney, Ohio, and entered railway service in 1883, serving as a telegraph operator on various railroads until 1888, when he went with the Illinois Central as a train dispatcher. Two years later he went with the Milwaukee, Lake Shore & Western (now part of the Chicago & North Western) in the same capacity, and from 1893 to 1898 he was out of railroad service. Mr. Bell returned to railroad work in the latter year as chief clerk to the general superintendent of the Southern Indiana (now part of the Chicago, Milwaukee, St. Paul & Pacific), and was subsequently advanced through the positions of chief train dispatcher and trainmaster. In September, 1905, he went with the Evansville & Terre Haute (now part of the Chicago & Eastern Illinois) as a trainmaster, being promoted to superintendent five years later. In June, 1913, Mr. Bell was made superintendent of the Illinois division of the C. & E. I., and was transferred to the Chicago division in 1916. In August, 1927, he was further advanced to superintendent of transportation, with headquarters at Chicago, which position he held until his retirement.

Thompson A. Hamilton, traffic manager of the Metals Reserve Company, a subsidiary of Reconstruction Finance Corporation, and a former railroad executive, died in Washington, D. C., on September 28. Mr. Hamilton was born at St. Louis, Mo., on January 21, 1879. He entered railroad service at the age of 16 as a telegrapher of the Canadian Pacific. His early railroad experience covered the performance of various classes of station and yard work with that company, the Grand Trunk, Missouri Pacific, Illinois Central and Louisville & Nashville. From 1911 to 1922 he was with the St. Louis-San Francisco as chief clerk to the general manager, assistant general manager, assistant to operating vice-president, vice-president in charge of operation, and vice-president and comptroller. In 1922 he became president of the International Great Northern and remained in that capacity until its absorption into the Missouri Pacific System in 1925. From 1925 until 1934 he was engaged in consulting work, inspection of railroad properties and related activities for various banking interests, with headquarters at New York. In August, 1934, he became associated with the Railroad division of Reconstruction Finance Corporation as an examiner, employed principally in field work. He continued in that capacity until July, 1940, when he became traffic manager of Metals Reserve Company.

EXPENSES OF RAILWAYS

VENUES AND EXPENSES OF REVENUES AND EXPENSES OF
MONTH OF AUGUST AND EIGHT MONTHS OF CALENDAR YEAR 1943
Operating expenses—

Av. mileage operated during period	Operating revenues	Maintenance of way and equipment			Traffic	Trans-shipment	Total	Operating ratio	Operating income	1943	1942
		Freight	Passenger	(inc. misc.)							
Akron, Canton & Youngstown* August 8 mos.	171	\$357,158	\$240	\$370,996	\$16,114	\$96,657	\$227,404	61.3	\$95,104	\$80,783	\$38,337
Akron, Canton & Youngstown* August 8 mos.	171	2,817,365	1,198	2,942,547	135,909	1,938,055	1,808,055	57.7	1,244,492	1,135,434	382,371
Akron, Canton & Youngstown* August 8 mos.	959	2,095,181	838,253	3,291,750	64,732	918,251	1,680,288	54.8	1,488,462	1,251,722	626,607
Alton* August 8 mos.	959	16,985,105	5,520,273	24,944,076	440,708	7,182,480	14,461,438	58.0	10,482,578	4,752,203	2,910,111
Atchison, Topeka & Santa Fe System. August 8 mos.	13,148	26,434,104	10,426,584	39,678,597	526,284	9,498,501	21,077,489	53.1	18,601,108	5,532,357	7,888,574
Atchison, Topeka & Santa Fe System. August 8 mos.	13,148	26,434,104	10,426,584	39,678,597	526,284	9,498,501	21,077,489	53.1	18,601,108	5,532,357	7,888,574
Atlanta & West Point. August 8 mos.	93	213,138,123	1,067,801	3,513,263	73,300	1,047,143	1,906,083	53.5	1,607,180	574,662	335,719
Atlanta & West Point. August 8 mos.	93	213,138,123	1,067,801	3,513,263	73,300	1,047,143	1,906,083	53.5	1,607,180	574,662	335,719
Western of Alabama. August 8 mos.	133	264,292	175,465	470,605	9,602	130,658	245,338	52.1	225,267	77,790	96,341
Western of Alabama. August 8 mos.	133	264,292	175,465	470,605	9,602	130,658	245,338	52.1	225,267	77,790	96,341
Atlanta, Birmingham & Coast. August 8 mos.	639	4,280,119	449,366	4,928,693	206,091	1,698,316	3,235,807	66.1	1,672,886	852,945	543,827
Atlanta, Birmingham & Coast. August 8 mos.	639	4,280,119	449,366	4,928,693	206,091	1,698,316	3,235,807	66.1	1,672,886	852,945	543,827
Atlantic Coast Line. August 8 mos.	4,956	7,691,221	3,898,296	12,224,200	190,597	3,387,646	6,619,111	54.1	5,603,089	1,105,089	1,168,481
Atlantic Coast Line. August 8 mos.	4,956	7,691,221	3,898,296	12,224,200	190,597	3,387,646	6,619,111	54.1	5,603,089	1,105,089	1,168,481
Charleston & Western Carolina. August 8 mos.	343	21,166,255	28,367,870	105,090,526	10,044	122,406	223,235	50.2	52,372,047	12,297,108	13,788,572
Charleston & Western Carolina. August 8 mos.	343	21,166,255	28,367,870	105,090,526	10,044	122,406	223,235	50.2	52,372,047	12,297,108	13,788,572
Baltimore & Ohio. August 8 mos.	6,146	26,297,314	4,146,938	32,058,508	3,679,150	10,547,366	1,283	64.9	120,587	585,354	586,001
Baltimore & Ohio. August 8 mos.	6,146	26,297,314	4,146,938	32,058,508	3,679,150	10,547,366	1,283	64.9	120,587	585,354	586,001
Staten Island Rapid Transit. August 8 mos.	24	1,481,125	959,877	2,777,775	9,295	727,252	1,243,483	132.9	128,574	83,064	67,171
Staten Island Rapid Transit. August 8 mos.	24	1,481,125	959,877	2,777,775	9,295	727,252	1,243,483	132.9	128,574	83,064	67,171
Bangor & Aroostook. August 8 mos.	602	262,690	97,092	390,841	4,481	1,346,867	3,504,308	67.1	1,713,327	1,130,632	940,660
Bangor & Aroostook. August 8 mos.	602	262,690	97,092	390,841	4,481	1,346,867	3,504,308	67.1	1,713,327	1,130,632	940,660
Bessemer & Lake Erie. August 8 mos.	214	12,354,554	15,774	12,467,864	103,230	2,351,115	10,014,663	80.3	2,453,201	1,206,415	2,321,564
Bessemer & Lake Erie. August 8 mos.	214	12,354,554	15,774	12,467,864	103,230	2,351,115	10,014,663	80.3	2,453,201	1,206,415	2,321,564
Boston & Maine. August 8 mos.	1,820	5,107,790	2,266,091	8,035,027	76,646	2,703,468	5,482,126	68.2	2,552,901	1,465,305	1,444,752
Boston & Maine. August 8 mos.	1,820	5,107,790	2,266,091	8,035,027	76,646	2,703,468	5,482,126	68.2	2,552,901	1,465,305	1,444,752
Burlington, Rock Island. August 8 mos.	228	3,916,271	1,318,955	5,781,226	639,989	19,874,299	39,503,874	68.3	18,308,367	10,860,084	8,693,293
Burlington, Rock Island. August 8 mos.	228	3,916,271	1,318,955	5,781,226	639,989	19,874,299	39,503,874	68.3	18,308,367	10,860,084	8,693,293
Cambria & Indiana. August 8 mos.	35	169,250	.....	169,320	71,691	18,318	109,678	64.8	59,642	7,696	56,550
Cambria & Indiana. August 8 mos.	35	169,250	.....	169,320	71,691	18,318	109,678	64.8	59,642	7,696	56,550
Canadian Pacific Lines in Maine. August 8 mos.	234	4,253,817	119,145	5,780,799	55,345	71,220	2,383,123	55.3	285,840	265,423	232,074
Canadian Pacific Lines in Maine. August 8 mos.	234	4,253,817	119,145	5,780,799	55,345	71,220	2,383,123	55.3	285,840	265,423	232,074
Canadian Pacific Lines in Vermont. August 8 mos.	90	64,968	22,014	101,869	48,836	2,300	89,396	71.7	1,590,792	789,019	899,795
Canadian Pacific Lines in Vermont. August 8 mos.	90	64,968	22,014	101,869	48,836	2,300	89,396	71.7	1,590,792	789,019	899,795
Central of Georgia. August 8 mos.	1,815	17,720,100	5,151,362	24,921,290	83,034	2,368,668	4,464,243	72.9	1,660,799	1,316,308	916,692
Central of Georgia. August 8 mos.	1,815	17,720,100	5,151,362	24,921,290	83,034	2,368,668	4,464,243	72.9	1,660,799	1,316,308	916,692
Central of New Jersey. August 8 mos.	657	4,486,655	850,416	5,627,198	406,799	16,943,817	30,215,429	70.9	12,393,595	6,716,913	5,320,621
Central of New Jersey. August 8 mos.	657	4,486,655	850,416	5,627,198	406,799	16,943,817	30,215,429	70.9	12,393,595	6,716,913	5,320,621
Chesapeake & Ohio. August 8 mos.	912	1,981,824	645,244	2,838,923	10,905	296,111	548,011	71.9	2,137,992	1,170,770	966,168
Chesapeake & Ohio. August 8 mos.	912	1,981,824	645,244	2,838,923	10,905	296,111	548,011	71.9	2,137,992	1,170,770	966,168
Chicago & Eastern Illinois. August 8 mos.	8,100	75,204,008	21,710,478	106,796,546	1,579,239	32,075,370	66,796,414	62.5	40,000,132	22,798,367	14,604,170
Chicago & Eastern Illinois. August 8 mos.	8,100	75,204,008	21,710,478	106,796,546	1,579,239	32,075,370	66,796,414	62.5	40,000,132	22,798,367	14,604,170
Chicago & Illinois Midland. August 8 mos.	131	543,333	1,501	575,194	19,563	129,042	313,248	54.5	261,946	90,893	68,157
Chicago & Illinois Midland. August 8 mos.	131	543,333	1,501	575,194	19,563	129,042	313,248	54.5	261,946	90,893	68,157
Chicago & North Western. August 8 mos.	9,030	15,854,329	3,156,393	20,596,815	249,554	4,636,581	10,170,187	49.4	10,426,628	5,477,722	5,168,569
Chicago & North Western. August 8 mos.	9,030	15,854,329	3,156,393	20,596,815	249,554	4,636,581	10,170,187	49.4	10,426,628	5,477,722	5,168,569
Chicago, Burlington & Quincy. August 8 mos.	1,500	10,792,284	19,860,706	139,530,133	2,062,662	34,365,795	75,148,983	53.9	64,381,250	31,372,250	17,800,329
Chicago, Burlington & Quincy. August 8 mos.	1,500	10,792,284	19,860,706	139,530,133	2,062,662	34,365,795	75,148,983	53.9	64,381,250	31,372,250	17,800,329
Chicago Great Western. August 8 mos.	1,500	16,655,134	1,807,306	19,795,554	490,238	6,370,580	12,142,575	61.3	7,652,979	3,871,728	1,679,056
Chicago Great Western. August 8 mos.	1,500	16,655,134	1,807,306	19,795,554	490,238	6,370,580	12,142,575	61.3	7,652,979	3,871,728	1,679,056
Indianapolis & Louisville. August 8 mos.	541	879,239	117,479	1,071,726	132,338	175,601	694,119	64.8	337,607	302,660	268,228
Indianapolis & Louisville. August 8 mos.	541	879,239	117,479	1,071,726	132,338	175,601	694,119	64.8	337,607	302,660	268,228
Alton and the Alton, Canton & Youngstown were operated by the Alton, Canton & Youngstown	541	7,254,825	799,102	8,641,020	959,823	1,382,014	5,469,639	63.3	3,171,390	2,591,089	1,432,995

* [In the tables of Revenues and Expenses of Railways for July 1890, Canton & Youngstown, not the Youngstown, Youngstown, transposed. Hence, the figures appearing on the first two lines are those of Akron, Canton & Youngstown, Youngstown.]

48

MODERN HIGH-POWER

ON THE



Locomotive Characteristics

Weight on Drivers	440,000 Lb.
Weight of Engine	644,000 Lb.
Cylinders (Four)	23 x 32 Ins.
Diameter of Drivers	70 Ins.
Boiler Pressure	260 Lb.
Tractive Power	106,900 Lb.
Tender Capacity—Fuel	27 Tons
Tender Capacity—Water	25,000 Gals.



★ ★ ★ ★ ★ ★ ★ ★
FOR VICTORY BUY U. S.
WAR BONDS AND STAMPS

WRED 4-6-6-4'S

"Main Street of the Northwest"



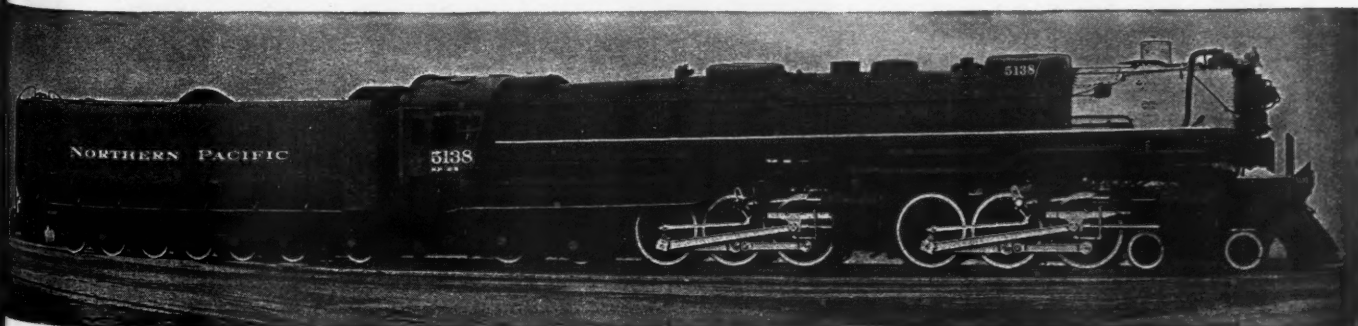
Alco recently received an order from the Northern Pacific—"The Main Street of the Northwest"—for eight 4-6-6-4 type single-expansion articulated locomotives. Upon the completion of this order, Alco will have delivered 48 of these modern high-powered 4-6-6-4 type locomotives to this road—all delivered since 1936.



AMERICAN LOCOMOTIVE

MANUFACTURERS OF MOBILE POWER

STEAM, DIESEL AND ELECTRIC LOCOMOTIVES, MARINE DIESELS, TANKS, GUN CARRIAGES & OTHER ORDNANCE



REVENUES AND EXPENSES OF RAILWAYS

MONTH OF AUGUST AND EIGHT MONTHS OF CALENDAR YEAR 1943—CONTINUED

Name of road	Av. mileage operated during period	Operating revenues				Operating expenses				Operating ratio	Net from operation		Net railway operating income
		Freight	Passenger	Total	(inc. misc.)	Way and structures	Maintenance of equip-	Traffic	Trans-portion	Total	Operating ratio	Net from operation	
Chicago, Milwaukee, St. Paul & Pacific.....	10,740	\$14,761,272	\$3,229,694	\$19,786,744	\$3,199,264	\$2,392,673	\$2,392,673	\$266,336	\$5,574,504	\$12,048,955	60.9	\$7,737,789	\$4,466,789
Chicago, Rock Island & Pacific.....	10,771	\$11,906,726	\$1,886,277	\$14,249,041	\$1,886,277	\$1,886,277	\$1,886,277	\$1,886,277	\$1,886,277	\$1,886,277	60.0	\$7,737,789	\$4,466,789
Chicago, Rock Island & Pacific.....	7,751	\$4,642,343	\$3,997,911	\$15,760,536	\$1,630,636	\$1,630,636	\$1,630,636	\$308,958	\$4,031,137	\$6,350,447	55.0	\$7,737,789	\$4,466,789
Chicago, Rock Island & Pacific.....	7,759	\$4,334,961	\$2,969,508	\$11,900,544	\$1,427,074	\$1,333,568	\$1,333,568	\$2,466,638	\$2,898,585	\$6,350,447	53.8	\$5,054,897	\$3,233,009
Chicago, St. Paul, Minneapolis & Omaha.....	1,617	\$1,890,407	\$414,896	\$2,438,024	\$422,033	\$313,569	\$313,569	\$37,636	\$81,522	\$1,701,200	69.2	\$756,824	\$486,718
Clinchfield Railroad.....	1,625	\$1,662,507	\$2,601,774	\$17,448,438	\$2,353,018	\$2,353,018	\$2,353,018	\$314,736	\$6,619,128	\$12,525,617	71.8	\$4,922,821	\$3,582,741
Clinchfield Railroad.....	302	\$1,061,431	\$14,801	\$1,085,515	\$92,678	\$92,678	\$92,678	\$19,952	\$199,934	\$498,500	45.9	\$587,015	\$453,202
Clinchfield Railroad.....	303	\$4,481,225	\$118,980	\$8,673,376	\$737,724	\$1,254,524	\$1,254,524	\$172,252	\$1,677,255	\$4,022,279	46.4	\$4,651,097	\$3,640,110
Colorado & Southern.....	748	\$788,603	\$316,279	\$1,205,509	\$158,871	\$201,288	\$201,288	\$15,448	\$320,860	\$742,939	61.6	\$462,570	\$285,983
Fort Worth & Denver City.....	804	\$6,122,144	\$2,435,874	\$8,999,325	\$1,097,005	\$1,348,744	\$1,348,744	\$123,763	\$2,570,107	\$5,110,330	61.2	\$3,489,095	\$2,231,437
Fort Worth & Denver City.....	804	\$879,658	\$457,808	\$1,431,618	\$141,856	\$119,158	\$119,158	\$23,476	\$35,715	\$680,391	47.5	\$751,227	\$441,938
Fort Worth & Denver City.....	804	\$5,908,615	\$3,210,486	\$9,900,452	\$1,016,777	\$934,314	\$934,314	\$188,965	\$2,366,490	\$4,934,602	49.8	\$4,965,850	\$2,881,733
Colorado & Wyoming.....	42	\$101,879	.....	\$152,643	\$20,525	\$13,563	\$13,563	\$883	\$2,336	\$92,123	60.3	\$60,520	\$34,802
Columbus & Greenville.....	42	\$63,362	.....	\$186,911	\$125,249	\$108,901	\$108,901	\$7,214	\$41,066	\$720,440	60.3	\$466,471	\$194,227
Columbus & Greenville.....	168	\$89,795	\$11,504	\$109,503	\$22,873	\$20,289	\$20,289	\$3,982	\$45,477	\$106,464	97.2	\$3,039	\$181
Columbus & Greenville.....	168	\$809,257	\$60,987	\$935,261	\$202,801	\$158,784	\$158,784	\$29,929	\$326,226	\$816,420	87.3	\$118,841	\$14,604
Delaware & Hudson.....	848	\$4,233,280	\$260,887	\$4,609,313	\$507,755	\$964,627	\$964,627	\$47,171	\$1,304,839	\$2,331,089	63.6	\$1,678,224	\$1,116,246
Delaware, Lackawanna & Western.....	848	\$29,894,410	\$1,383,072	\$32,109,969	\$3,305,718	\$7,350,285	\$7,350,285	\$352,478	\$10,115,368	\$21,969,639	68.4	\$10,140,320	\$6,162,914
Delaware, Lackawanna & Western.....	974	\$5,686,155	\$1,133,340	\$7,445,543	\$803,025	\$997,919	\$997,919	\$118,003	\$2,711,744	\$4,804,523	64.5	\$2,641,020	\$1,401,020
Delaware, Lackawanna & Western.....	978	\$4,229,377	\$7,627,735	\$4,815,648	\$5,257,601	\$7,583,189	\$7,583,189	\$905,208	\$2,021,637	\$35,400,025	64.6	\$19,415,623	\$9,829,623
Denver & Rio Grande Western.....	2,405	\$2,855,534	\$909,282	\$6,486,351	\$519,607	\$983,922	\$983,922	\$88,952	\$1,759,484	\$3,332,719	54.5	\$2,953,632	\$1,872,749
Denver & Rio Grande Western.....	2,405	\$3,173,347	\$6,494,834	\$46,646,233	\$3,707,356	\$7,316,771	\$7,316,771	\$731,194	\$12,707,780	\$25,805,484	55.3	\$20,840,749	\$13,111,755
Denver & Salt Lake.....	232	\$256,331	\$12,125	\$281,733	\$48,056	\$61,362	\$61,362	\$2,610	\$80,949	\$203,926	72.4	\$77,807	\$28,488
Denver & Salt Lake.....	232	\$1,867,450	\$70,189	\$2,035,322	\$323,178	\$410,112	\$410,112	\$20,997	\$629,347	\$1,470,488	72.2	\$564,834	\$291,723
Detroit & Mackinac.....	242	\$49,520	\$17,250	\$75,619	\$30,625	\$16,433	\$16,433	\$808	\$27,663	\$79,043	104.5	\$—3,424	\$—9,961
Detroit & Mackinac.....	242	\$477,023	\$105,264	\$657,789	\$154,793	\$141,903	\$141,903	\$7,042	\$240,425	\$575,362	87.5	\$82,427	\$19,869
Detroit & Toledo Shore Line.....	50	\$305,863	.....	\$305,863	\$38,135	\$23,525	\$23,525	\$9,073	\$85,255	\$163,994	53.4	\$142,959	\$95,573
Detroit & Toledo Shore Line.....	50	\$2,835,545	.....	\$2,846,538	\$262,819	\$194,319	\$194,319	\$73,253	\$721,954	\$1,316,508	46.2	\$1,530,030	\$978,882
Detroit, Toledo & Ironton.....	464	\$660,458	\$1,764	\$709,640	\$99,322	\$119,458	\$119,458	\$12,138	\$172,705	\$426,454	60.1	\$283,186	\$168,597
Duluth, Missabe & Iron Range.....	464	\$5,922,699	\$10,288	\$6,735,417	\$731,915	\$894,177	\$894,177	\$110,792	\$1,447,705	\$3,707,667	52.9	\$3,044,550	\$1,778,764
Duluth, Missabe & Iron Range.....	546	\$5,691,135	\$7,011	\$6,549,902	\$59,742	\$44,810	\$44,810	\$1,042	\$91,810	\$1,941,929	22.6	\$4,607,973	\$1,720,407
Duluth, Missabe & Iron Range.....	546	\$21,853,974	\$3,131	\$25,384,705	\$2,972,638	\$3,659,562	\$3,659,562	\$34,264	\$4,513,034	\$11,499,456	45.3	\$13,885,249	\$5,064,381
Duluth, Winnipeg & Pacific.....	175	\$205,000	\$5,300	\$217,000	\$1,817	\$28,083	\$28,083	\$1,996	\$80,284	\$166,078	76.5	\$50,922	\$33,609
Elgin, Joliet & Eastern.....	392	\$1,670,000	\$30,600	\$1,737,400	\$304,896	\$231,400	\$231,400	\$15,428	\$70,118	\$1,251,209	72.0	\$486,191	\$353,183
Elgin, Joliet & Eastern.....	392	\$2,188,516	\$114	\$2,559,577	\$218,532	\$689,546	\$689,546	\$15,486	\$916,934	\$1,310,134	56.9	\$682,117	\$289,817
Elgin, Joliet & Eastern.....	392	\$18,603,060	\$201	\$21,697,958	\$1,579,965	\$6,217,989	\$6,217,989	\$128,739	\$7,374,538	\$15,762,833	72.6	\$5,935,125	\$1,997,093
Erie.....	2,242	\$1,831,784	\$1,263,863	\$3,947,331	\$1,435,189	\$2,115,046	\$2,115,046	\$197,005	\$4,277,009	\$8,425,879	60.4	\$5,321,452	\$2,094,259
Florida East Coast.....	2,242	\$1,272,926	\$7,101,091	\$104,412,199	\$8,779,238	\$16,319,390	\$16,319,390	\$1,646,783	\$3,333,116	\$63,082,718	60.4	\$41,329,481	\$18,097,905
Florida East Coast.....	682	\$1,263,780	\$887,652	\$2,301,458	\$245,267	\$253,281	\$253,281	\$67,178	\$633,334	\$991,334	56.9	\$991,334	\$660,666
Florida East Coast.....	682	\$1,836,280	\$9,664,152	\$22,921,400	\$2,136,892	\$1,879,850	\$1,879,850	\$361,175	\$5,476,581	\$10,769,895	47.0	\$12,151,505	\$7,970,345
Georgia Railroad.....	329	\$676,976	\$179,089	\$892,090	\$4,243	\$104,972	\$104,972	\$21,916	\$295,205	\$532,350	59.7	\$359,740	\$330,359
Georgia & Florida.....	329	\$5,799,414	\$1,301,836	\$7,218,594	\$695,948	\$748,506	\$748,506	\$173,614	\$2,233,444	\$4,022,542	55.7	\$3,196,052	\$2,968,898
Georgia & Florida.....	408	\$1,275,169	\$42,897	\$1,359,360	\$325,382	\$169,664	\$169,664	\$79,617	\$422,085	\$1,048,600	77.1	\$310,760	\$235,978
Grand Trunk Western.....	1,026	\$2,310,000	\$384,000	\$2,850,000	\$463,865	\$478,604	\$478,604	\$37,547	\$1,126,672	\$2,215,232	77.7	\$634,768	\$443,127
Grand Trunk Western.....	1,026	\$1,682,000	\$2,490,000	\$3,436,000	\$3,228,689	\$3,644,313	\$3,644,313	\$287,454	\$8,475,699	\$16,458,493	70.2	\$6,977,507	\$4,734,133
Canadian National Lines in New England.....	172	\$86,700	\$14,000	\$115,400	\$60,086	\$34,951	\$34,951	\$2,530	\$8,168	\$206,450	178.9	\$—91,050	\$—111,353
Canadian National Lines in New England.....	172	\$907,700	\$69,100	\$1,165,700	\$407,606	\$241,042	\$241,042	\$19,794	\$719,548	\$1,553,755	133.3	\$—388,055	\$—550,479
Great Northern.....	8,310	\$15,368,662	\$1,784,682	\$18,685,538	\$2,636,749	\$2,893,566	\$2,893,566	\$222,489	\$4,209,417	\$10,402,087	55.7	\$8,283,451	\$2,967,250
Green Bay & Western.....	8,310	\$103,276,643	\$1,207,321	\$124,923,223	\$18,447,472	\$26,988,223	\$26,988,223	\$1,699,918	\$30,449,472	\$76,159,967	56.1	\$48,736,868	\$19,538,352
Green Bay & Western.....	234	\$1,760,344	\$4,745	\$1,854,661	\$389,620	\$149,797	\$149,797	\$62,170	\$475,395	\$1,133,292	61.1	\$721,369	\$505,282
Gulf & Ship Island.....	259	\$121,627	\$40,758	\$180,396	\$56,988	\$23,181	\$23,181	\$3,648	\$2,132	\$16,270	90.9	\$16,426	\$—2,355
Gulf & Ship Island.....	259	\$1,175,084	\$355,193	\$1,687,489	\$56,988	\$23,181	\$23,181	\$3,648	\$2,132	\$16,270	90.9	\$16,426	\$—2,355
Gulf & Ship Island.....	259	\$1,175,084	\$355,193	\$1,687,489	\$56,988	\$23,181	\$23,181	\$3,648	\$2,132	\$16,270	90.9	\$16,426	\$—2,355

Rolling the
Loads with



"AB" BRAKES

Each additional car with "AB"
Brake—new or converted—is
an added spur to the record
breaking ton-mileage race of
materials for our fighting forces.



WESTINGHOUSE AIR BRAKE CO.

WILMERDING, PENNSYLVANIA

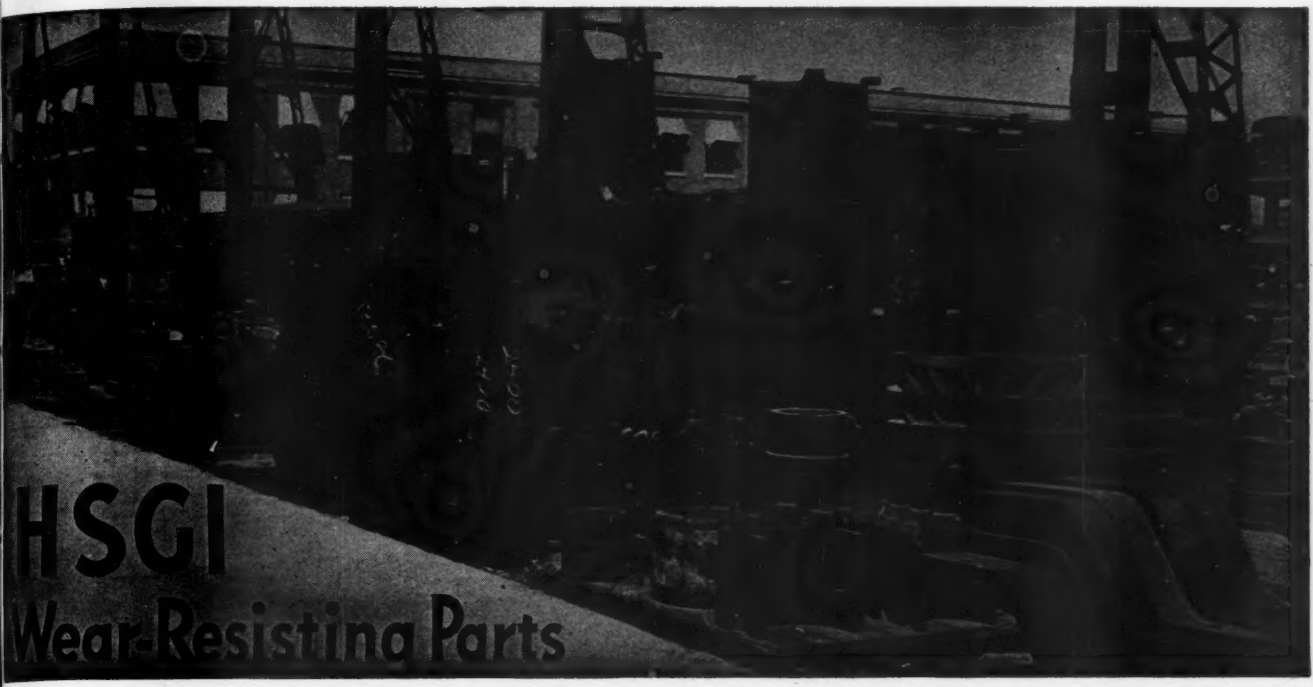
REVENUES AND EXPENSES OF RAILWAYS

MONTH OF AUGUST AND EIGHT MONTHS OF CALENDAR YEAR 1943—CONTINUED

Name of road	Av. mileage operated during period	Operating revenues				Operating expenses				Operating ratio	Net from railway operation	Net railway operating income	
		Freight	Passenger (inc. misc.)	Total	Way and structures	Equipment	Traffic	Trans- portation	Total			1943	1942
Gulf, Mobile & Ohio.....	August	1,973	\$2,817,872	\$271,146	\$3,179,049	\$487,349	\$78,898	\$798,554	\$1,944,896	61.2	\$1,234,153	\$400,772	\$547,809
.....	8 mos.	1,972	23,012,054	2,567,157	3,833,623	3,703,501	648,605	6,536,951	15,623,435	61.1	9,943,577	3,350,323	3,266,435
Illinois Central	August	4,824	14,219,402	3,340,443	18,506,277	2,648,766	2,015,112	5,048,107	11,736,921	63.4	6,769,356	2,337,202	2,010,680
.....	8 mos.	4,827	109,953,196	21,536,439	139,485,774	21,300,575	16,733,006	39,546,565	92,328,783	66.2	47,156,991	21,795,781	15,376,214
Yazoo & Mississippi Valley	August	1,524	2,042,067	428,247	2,624,850	436,904	41,596	1,012,532	1,994,492	76.0	630,358	366,459	182,387
.....	8 mos.	1,524	16,822,270	2,717,226	25,335,768	3,552,950	328,818	7,410,866	15,102,760	59.1	10,433,008	4,599,787	8,177,923
Illinois Central System	August	6,348	16,261,469	3,768,690	21,131,127	3,085,670	252,108	6,060,639	13,731,413	65.0	7,399,714	3,354,654	3,385,565
.....	8 mos.	6,351	131,635,466	24,253,665	165,021,542	24,853,525	2,001,894	46,957,431	107,431,543	65.1	57,589,999	26,410,871	23,596,440
Illinois Terminal	August	476	608,196	185,172	878,191	100,820	18,224	242,286	438,604	52.22	419,587	126,577	244,417
.....	8 mos.	476	4,831,914	1,367,263	6,499,088	725,588	147,417	1,868,492	3,570,298	55.71	2,838,810	1,077,909	955,426
Kansas City Southern	August	878	2,834,609	492,705	3,326,989	625,956	37,318	912,737	2,234,960	62.5	1,342,029	657,029	553,715
.....	8 mos.	878	23,956,774	2,925,676	28,551,493	4,679,954	461,595	6,800,511	16,312,111	57.1	12,239,382	6,027,582	4,345,944
Kansas, Oklahoma & Gulf	August	328	374,990	1,623	379,638	74,608	10,790	91,959	210,009	55.3	169,629	101,672	79,477
.....	8 mos.	328	2,627,894	10,730	2,665,654	462,338	78,657	616,676	1,389,699	52.1	1,275,955	782,390	446,710
Lake Superior & Ishpeming	August	156	382,655	231	502,760	40,747	558	81,290	165,956	33.0	336,804	185,867	32,662
.....	8 mos.	156	1,560,775	1,492	2,060,357	266,508	4,960	416,617	1,062,012	51.2	998,345	452,520	559,460
Lehigh & Hudson River	August	96	243,416	249	244,484	68,656	5,074	69,749	186,852	76.4	57,632	31,469	14,113
.....	8 mos.	96	2,079,243	2,982	2,089,585	326,693	35,189	580,177	1,286,585	59.3	851,282	387,770	283,846
Lehigh & New England	August	190	579,576	.....	579,576	49,670	9,123	151,700	236,682	58.2	242,285	108,927	116,580
.....	8 mos.	190	4,100,078	.....	4,122,841	365,826	53,237	1,160,224	2,603,233	63.1	1,519,608	755,147	914,978
Lehigh Valley	August	1,260	7,097,093	781,571	8,320,027	1,062,436	117,726	2,839,518	5,510,516	66.2	2,809,511	1,499,823	1,068,447
.....	8 mos.	1,260	51,889,627	4,688,812	60,367,457	9,849,447	920,237	20,639,197	40,017,048	66.3	20,350,409	12,008,667	8,939,550
Louisiana & Arkansas	August	854	1,485,359	142,653	1,685,594	349,751	31,078	344,017	985,316	58.5	700,278	237,640	147,032
.....	8 mos.	854	11,590,167	1,027,957	13,095,916	2,906,589	244,290	2,593,699	7,591,451	58.0	5,504,465	2,048,325	1,488,836
Louisville & Nashville	August	4,745	12,755,632	4,078,982	17,674,138	1,729,800	201,304	4,901,941	10,081,648	57.0	7,592,490	2,226,035	1,677,584
.....	8 mos.	4,745	100,871,056	30,121,310	138,260,653	12,744,263	1,629,998	37,756,024	76,813,275	55.6	61,447,378	15,948,964	13,981,574
Maine Central	August	991	1,063,336	412,839	1,600,055	284,361	12,451	548,628	1,167,400	73.0	432,625	218,293	203,175
.....	8 mos.	991	9,169,837	2,394,813	12,452,880	1,857,988	102,315	4,108,940	8,470,784	68.0	3,982,096	2,089,377	1,730,393
Midland Valley	August	351	151,322	38	154,469	41,737	2,061	45,313	110,743	71.7	45,726	36,899	21,641
.....	8 mos.	351	1,199,087	1,812	1,223,228	213,501	17,208	329,952	707,729	57.9	515,499	348,844	175,927
Minneapolis & St. Louis	August	1,408	1,189,345	39,757	1,276,337	219,862	59,756	365,643	846,861	66.4	429,476	364,292	304,740
.....	8 mos.	1,408	8,978,502	262,687	9,584,317	1,513,742	476,684	2,833,353	6,485,517	67.7	3,098,800	2,514,647	1,651,885
Minneapolis, St. Paul & Sault Ste. Marie	August	4,277	3,962,362	318,365	4,616,279	679,336	71,963	1,415,652	2,952,585	64.0	1,663,694	1,231,431	722,266
.....	8 mos.	4,277	26,219,305	1,831,601	30,186,132	4,664,196	560,752	10,558,886	21,522,982	71.3	8,663,150	5,588,729	3,931,340
Duluth, South Shore & Atlantic	August	551	371,052	42,375	445,543	93,558	7,449	131,085	288,151	70.1	137,392	135,358	83,511
.....	8 mos.	551	2,376,186	215,833	2,795,647	484,388	60,958	964,474	1,959,206	70.1	836,441	679,433	539,808
Spokane International	August	152	127,703	13,851	149,440	47,232	3,413	42,138	107,031	71.6	42,409	25,098	41,830
.....	8 mos.	152	1,230,614	59,322	1,356,033	253,208	24,942	318,760	710,550	52.4	645,503	277,600	210,508
Mississippi Central	August	158	1,457,073	3,741	1,556,666	30,891	8,443	33,534	95,433	62.7	55,760	35,141	45,100
.....	8 mos.	158	10,887,748	46,240	11,566,666	221,293	68,553	267,785	724,242	62.6	432,424	266,732	232,365
Missouri & Arkansas	August	365	152,233	4,649	164,878	63,425	7,353	57,043	155,878	94.5	9,000	6,189	11,737
.....	8 mos.	365	1,365,945	29,044	1,456,477	461,632	59,386	511,086	1,252,372	86.0	204,105	140,515	47,009
Missouri-Illinois	August	172	302,671	442	305,074	43,574	3,270	60,862	149,071	48.9	156,003	60,988	75,066
.....	8 mos.	172	2,054,726	4,316	2,071,094	300,731	26,790	503,629	1,138,994	55.0	932,100	345,419	274,720
Missouri-Kansas-Texas Lines	August	3,293	4,358,498	1,283,968	6,108,188	1,505,819	120,995	1,807,011	4,429,485	72.5	1,678,703	901,084	1,150,154
.....	8 mos.	3,293	37,005,005	8,866,652	49,516,511	12,895,770	985,729	14,429,076	36,444,082	73.3	13,072,429	8,259,235	5,985,911
Missouri Pacific	August	7,097	13,239,876	3,567,331	20,042,622	2,668,019	276,900	5,014,433	10,862,983	52.8	5,014,659	3,577,747	2,653,540
.....	8 mos.	7,097	114,811,146	22,950,222	147,234,976	15,451,354	2,290,503	39,251,204	79,362,424	53.9	67,872,552	34,612,714	27,651,804
Gulf Coast Lines	August	1,734	2,905,637	350,875	3,396,733	476,910	48,262	859,206	1,797,046	52.9	1,599,687	722,306	900,125
.....	8 mos.	1,734	23,664,611	2,431,529	27,193,553	3,519,336	411,465	6,270,435	13,253,770	48.74	13,939,783	6,068,064	4,079,031
International Great Northern	August	1,155	1,671,558	546,227	2,447,490	480,123	32,288	707,143	1,627,242	66.5	862,248	479,409	693,398
.....	8 mos.	1,155	14,202,562	3,600,637	19,464,356	2,823,522	269,919	5,632,885	11,800,344	60.6	7,664,012	3,946,458	2,828,289
Monongahela	August	171	694,255	2,405	610,605	68,264	592	1,026,549	247,343	40.5	363,453	247,744	360,401
.....	8 mos.	171	4,435,441	14,034	4,468,119	533,033	5,744	1,070,471	1,583,596	44.4	2,884,423	1,583,596	1,583,596

Table continued on next left-hand page.

165.065
 1.068.632
 160.401
 500.346
 247.744
 1.588.375
 363.462
 2.484.123
 40.5
 44.4
 247.143
 1.983.996
 128.549
 1.070.471
 602
 5.744
 46.432
 356.548
 68.264
 523.035
 610.605
 4.468.119
 2.405
 14.034
 604.255
 4.435.441
 171
 171
 August
 8 mos.
 Monongahela



HSGI
Wear-Resisting Parts

SAVE VITAL WAR MATERIALS...

Keep Locomotives in Service Longer

THROUGHOUT many years of war and peace, HUNT-SPILLER *Air Furnace* GUN IRON has served the railways well. Experienced railway men recognize its unsurpassed merit—not only as a thoroughly homogeneous, easily machineable material, but also as a long-wearing, heat-resisting high-strength product—adapted in every respect to the toughest kind of heavy duty locomotive service.

In this war steam locomotives are supreme! They're moving traffic in staggering quantities—and must continue to do so—perhaps for years. . . . It's the kind of service for which HUNT-SPILLER *Air Furnace* GUN IRON is preeminent! Use this material for locomotive parts listed below—and your locomotives will remain in operating condition for much longer periods.

- HSGI**
Reg. U. S. Trade Mark
- Cylinder Bushings
 - Cylinder Packing Rings
 - Pistons or Piston Bull Rings
 - Valve Bushings
 - Valve Packing Rings
 - Valve Bull Rings
 - Crosshead Shoes
 - Hub Liners
 - Shoes and Wedges
 - Floating Rod Bushings
- Finished Parts**
- Dunbar Sectional Type Packing
 - Duplex Sectional Type Packing
 - for Cylinders and Valves
 - (Duplex Springs for Above)
 - Sectional Packing
 - Cylinder Snap Rings
 - Valve Rings, All Shapes
 - Light Weight Valves
 - Cylinder Liners and Pistons
 - for Diesel Service

HUNT-SPILLER MFG. CORPORATION
V. W. Ellet, President E. J. Fuller, Vice-Pres. & Gen. Mgr.

Office & Works
 383 Dorchester Ave. South Boston 27, Mass.
 Canadian Representative: Joseph Robb & Co., Ltd., 5575 Cote St. Paul Rd., Montreal, P. Q.
 Export Agent for Latin America:
 International Rwy. Supply Co., 30 Church Street, New York, N. Y.

HUNT-SPILLER

GUN IRON

Air Furnace

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF AUGUST AND EIGHT MONTHS OF CALENDAR YEAR 1943—CONTINUED

Name of road	Av. mileage operated during period	Operating revenues				Operating expenses				Operating ratio	Net from railway operation	
		Freight	Passenger	Total (inc. misc.)	Maintenance of way and structures	Equipment	Traffic	Trans- portation	Total		1943	1942
Montour	August 51 mos.	\$284,735	.....	\$286,084	\$20,636	\$69,261	\$867	\$68,404	\$166,711	58.2	\$119,373	\$73,452
Nashville, Chattanooga & St. Louis	August 51 mos.	1,903,607	.....	1,917,429	119,679	453,388	7,253	506,134	1,147,293	52.6	770,136	502,781
Nashville, Chattanooga & St. Louis	August 8 mos.	2,626,308	\$954,069	3,815,972	310,869	646,633	95,679	1,135,481	2,501,008	65.8	1,314,965	887,784
Nashville, Chattanooga & St. Louis	August 8 mos.	19,907,229	5,600,931	27,431,597	3,185,501	4,480,664	656,668	7,945,341	17,065,732	62.2	10,365,865	4,024,727
Nevada Northern	August 165 mos.	51,029	1,488	55,402	13,889	4,770	1,140	10,269	33,545	60.5	21,857	9,606
Nevada Northern	August 8 mos.	404,114	9,412	413,526	43,034	29,182	9,470	75,020	239,615	55.2	194,422	74,301
Nevada Northern	August 8 mos.	42,775,015	16,549,663	64,709,978	7,758,332	9,502,710	608,062	19,167,771	39,071,540	60.4	25,638,438	8,376,674
New York Central	August 10,797 mos.	322,774,687	104,569,969	468,567,904	54,352,066	74,682,318	5,043,753	146,464,046	295,808,255	63.1	172,759,649	62,437,488
Pittsburgh & Lake Erie	August 231 mos.	2,799,782	138,993	3,027,440	352,004	878,819	41,022	811,555	2,181,406	72.1	846,034	502,536
Pittsburgh & Lake Erie	August 8 mos.	21,996,412	888,119	23,594,433	2,308,215	6,789,018	324,749	6,383,197	16,588,386	70.3	7,006,047	2,857,718
Pittsburgh & Lake Erie	August 8 mos.	7,665,879	373,305	8,194,138	2,707,516	1,092,609	126,496	2,322,680	4,800,635	54.3	3,693,506	1,090,536
New York, Chicago & St. Louis	August 1,688 mos.	63,089,313	2,037,108	66,265,717	5,705,491	8,239,769	1,031,755	18,417,486	34,867,046	52.62	31,395,671	12,999,250
New York, New Haven & Hartford	August 1,838 mos.	7,849,416	6,926,826	15,935,649	1,860,355	2,016,250	134,557	4,804,905	9,452,016	59.3	6,483,633	4,251,479
New York, New Haven & Hartford	August 8 mos.	63,073,020	47,491,678	119,308,638	12,975,042	15,513,018	1,159,293	35,787,130	70,227,386	58.9	49,081,252	31,817,980
New York, New Haven & Hartford	August 8 mos.	21	226,802	79,415	79,415	10,215	.....	42,266	133,496	59.7	93,306	131,203
New York Connecting	August 21 mos.	1,635,700	.....	1,801,520	609,879	104,958	.....	347,441	1,075,359	59.7	726,161	105,890
New York, Ontario & Western	August 546 mos.	665,973	173,704	899,957	108,404	157,321	23,387	393,115	724,056	80.5	175,901	137,003
New York, Ontario & Western	August 8 mos.	4,704,325	694,251	5,853,602	754,995	1,115,415	173,555	2,694,557	5,015,464	85.7	848,138	554,322
New York, Ontario & Western	August 8 mos.	455,675	42,501	516,319	54,633	54,633	4,583	166,881	299,024	57.9	217,295	146,606
New York, Susquehanna & Western	August 120 mos.	3,438,181	314,746	3,942,049	296,828	299,933	33,455	1,358,684	2,111,924	53.6	1,830,125	1,278,336
Norfolk & Western	August 2,155 mos.	10,724,383	1,677,711	12,767,159	1,651,349	2,449,416	164,411	2,835,293	6,909,213	54.1	5,857,946	1,288,622
Norfolk & Western	August 8 mos.	86,708,051	10,188,982	99,923,389	7,522,228	19,933,526	1,370,792	22,364,025	55,827,320	55.9	44,096,069	9,879,067
Norfolk Southern	August 734 mos.	5,080,985	40,039	5,477,203	1,207,784	614,913	237,526	1,659,158	3,934,044	71.8	1,543,159	931,659
Northern Pacific	August 6,868 mos.	10,156,316	1,751,244	12,907,452	1,681,150	2,265,263	173,928	3,178,128	7,798,170	60.3	5,133,282	2,524,068
Northern Pacific	August 8 mos.	74,246,332	10,638,974	92,407,723	11,641,921	15,861,921	1,370,568	25,052,124	57,682,716	62.4	34,725,009	17,887,700
Northwestern Pacific	August 331 mos.	3,871,062	110,476	4,148,017	1,249,645	434,653	20,616	1,196,505	2,556,495	71.3	1,191,522	1,006,026
Oklahoma City-Ada-Atoka	August 132 mos.	143,756	.....	147,670	20,816	4,477	1,083	35,168	66,053	44.7	81,617	151,856
Oklahoma City-Ada-Atoka	August 8 mos.	981,807	1,463	1,002,211	144,980	34,222	6,240	233,096	455,001	45.4	547,212	335,316
Pennsylvania	August 10,172 mos.	58,854,872	23,320,822	88,413,643	8,899,160	12,864,040	909,014	26,583,463	51,524,533	58.3	36,889,110	11,452,109
Pennsylvania	August 8 mos.	437,071,103	157,349,002	643,249,761	67,610,502	106,504,533	7,519,369	228,784,379	430,260,872	66.9	212,988,889	72,363,469
Long Island	August 378 mos.	1,152,258	3,257,119	4,580,344	499,064	445,415	38,833	1,405,134	2,429,230	53.0	2,151,114	1,122,536
Long Island	August 8 mos.	8,805,413	19,048,331	29,083,428	4,234,046	3,755,443	254,018	11,354,058	20,052,868	68.9	9,030,545	4,872,985
Pennsylvania-Reading Seashore Lines	August 392 mos.	554,531	1,336,795	1,938,246	263,372	94,817	9,444	516,718	902,408	46.6	1,035,838	920,069
Pennsylvania-Reading Seashore Lines	August 8 mos.	3,913,527	4,824,141	9,002,493	1,337,445	832,688	74,805	3,527,789	5,959,717	66.2	3,042,776	2,245,507
Pere Marquette	August 1,998 mos.	4,091,810	437,925	4,812,726	778,208	779,387	66,402	1,508,931	3,297,534	68.5	1,515,192	664,767
Pittsburgh & Shawmut	August 97 mos.	32,362,197	2,500,779	36,561,755	5,040,038	6,079,590	539,024	11,732,512	24,621,447	67.3	11,940,328	5,257,768
Pittsburgh & Shawmut	August 8 mos.	136,589	.....	136,589	29,911	180,082	1,880	32,351	89,206	65.2	47,354	30,302
Pittsburgh & Shawmut	August 8 mos.	953,073	.....	953,073	194,268	164,072	16,027	244,869	659,554	69.0	295,996	190,632
Pittsburgh & West Virginia	August 136 mos.	591,214	.....	608,087	118,971	110,606	19,054	151,488	423,643	69.7	184,444	113,503
Pittsburgh & West Virginia	August 8 mos.	136,082	.....	136,082	79,312	884,335	155,475	1,331,334	3,364,028	63.1	1,966,237	2,222,646
Pittsburgh & West Virginia	August 8 mos.	190	.....	190	138,317	28,402	956	46,609	103,143	74.6	35,174	28,433
Pittsburgh, Shawmut & Northern	August 190 mos.	973,307	.....	988,426	180,082	181,437	8,238	360,179	776,434	78.5	211,992	160,733
Reading	August 1,417 mos.	8,563,169	988,157	9,938,944	1,095,870	1,868,556	80,923	3,218,801	6,469,939	65.1	3,469,005	1,009,508
Reading	August 8 mos.	66,517,031	6,678,091	76,786,415	8,066,845	14,940,858	637,054	25,390,463	50,646,069	66.0	26,143,520	13,353,893
Richmond, Fredericksburg & Potomac	August 1,118 mos.	1,360,708	1,320,726	3,081,745	163,840	1,081,174	17,710	656,360	2,444,883	40.4	1,836,862	462,204
Richmond, Fredericksburg & Potomac	August 8 mos.	12,531,280	10,457,686	24,766,470	1,283,486	2,095,097	106,670	5,659,852	9,922,955	40.0	14,843,515	4,082,125
Rutland	August 407 mos.	262,942	89,188	381,334	56,534	419,440	11,671	191,307	358,691	85.5	60,749	35,527
Rutland	August 8 mos.	2,007,506	428,344	3,010,312	431,243	698,598	9,945	1,455,700	2,696,069	89.6	3,690,060	123,465
St. Louis-San Francisco	August 4,665 mos.	6,348,725	2,372,139	9,541,152	992,990	1,572,884	151,411	2,821,721	5,851,092	61.3	24,674,547	2,322,349
St. Louis-San Francisco	August 8 mos.	48,626,523	15,010,378	69,649,425	7,748,172	12,037,590	1,190,445	21,565,037	44,974,878	64.8	24,674,547	15,831,638
St. Louis, San Francisco & Texas	August 159 mos.	332,885	26,083	365,819	28,540	216,176	9,202	89,373	1,375,239	48.6	1,455,681	265,471
St. Louis, San Francisco & Texas	August 8 mos.	2,336,476	208,717	2,830,920	285,501	216,176	78,444	743,187	1,375,239	48.6	1,455,681	265,471

Table continued on next left-hand page

Railway Age—October 9, 1943

READY SOON FOR SHOWING IN YOUR PLANT "PIPING POINTERS" A NEW SOUND MOTION PICTURE FOR MAINTENANCE WORKERS

STILL greater shortages of man power and reduced supplies of vital equipment are threatened by war. Yet no plant can operate efficiently without adequate care for its piping systems.

Seeing and hearing this film will give new, inexperienced maintenance workers a quicker grasp of their jobs—a clearer understanding of how to handle valves, fittings, and piping accessories to keep pipe lines flowing with fewer interruptions. To "old timers" it will recall many forgotten "tricks of the trade."

As the leading maker of valves and fittings, Crane Co. offers this film in today's emergency—to share with all industry—its 88-year experience in flow-control engineering. "Piping Pointers" will be available for showing in any plant, trade school or industrial training center.



Made on 16mm. film.
Showing time approximately 30 minutes.

Showings Arranged by Your Crane Branch

The Crane Branch serving your area will gladly supply full information about "Piping Pointers" and arrange a convenient showing in your plant. Reserve a date for an early showing by calling your Crane Representative today. CRANE CO., General Offices: 836 S. Michigan Ave., Chicago 5, Ill.

CRANE VALVES

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF AUGUST AND EIGHT MONTHS OF CALENDAR YEAR 1943—CONTINUED

Name of road	Av. mileage operated during period	Operating revenues			Operating expenses			Operating ratio	Net from railway operation	Net railway operating income		
		Freight	Passenger	Total (inc. misc.)	Maintenance of Way and structures	Equip-ment	Trans-portion			Total	1943	1942
St. Louis Southwestern Lines.....August 8 mos.	4,177	\$6,422,531	\$3,517,624	\$10,565,264	\$1,090,587	\$1,262,774	\$2,353,361	\$5,949,488	56.3	\$4,615,776	\$2,525,276	\$2,898,807
Seaboard Air Line .....August 8 mos.	4,180	60,311,737	26,496,738	92,226,017	8,896,083	11,433,641	24,973,631	50,544,479	54.8	41,681,538	27,691,538	23,778,214
Southern Railway .....August 8 mos.	6,514	14,171,389	5,547,313	20,926,230	2,042,461	3,007,728	5,000,514	10,848,256	51.8	10,077,974	3,435,652	3,283,482
Alabama Great Southern .....August 8 mos.	315	1,429,684	471,129	1,992,566	132,481	267,864	501,516	987,423	49.6	1,005,143	364,440	287,788
.....August 8 mos.	315	11,552,767	3,094,865	15,369,449	1,129,663	2,106,509	3,979,176	7,820,954	50.9	7,548,495	2,497,218	1,819,417
Cincinnati, New Orleans & Texas Pacific.....August 8 mos.	337	2,352,180	551,119	3,034,579	262,660	566,500	657,385	1,602,649	52.8	1,431,930	600,285	453,820
Georgia Southern & Florida.....August 8 mos.	397	352,742	276,182	679,663	68,835	60,739	2,462	323,911	47.7	355,752	156,476	107,064
.....August 8 mos.	397	2,872,692	1,814,880	5,074,522	571,956	441,518	1,359,599	2,516,868	49.6	2,557,654	1,092,971	496,134
New Orleans & Northeastern .....August 8 mos.	204	894,924	261,221	1,205,688	114,732	114,706	286,599	568,893	47.2	636,795	246,663	119,777
Southern Pacific .....August 8 mos.	8,317	26,631,166	8,443,349	38,499,685	6,186,924	6,261,830	11,034,260	29,920,333	67.3	12,579,352	5,293,238	6,669,554
.....August 8 mos.	8,322	217,555,843	63,030,050	305,888,734	35,842,979	47,043,155	4,029,106	185,238,716	60.6	120,650,018	52,845,568	41,885,343
Texas & New Orleans .....August 8 mos.	4,341	8,242,320	2,345,331	11,229,876	1,059,018	1,208,498	2,714,887	5,445,896	48.5	5,783,980	2,875,803	2,307,187
Spokane, Portland & Seattle .....August 8 mos.	4,341	66,525,366	16,835,639	88,044,446	8,525,158	8,931,538	1,117,479	41,573,986	47.2	46,470,460	24,109,133	19,549,944
.....August 8 mos.	929	1,810,338	205,450	2,139,399	291,918	118,071	597,254	1,077,910	50.4	1,061,489	710,315	490,461
.....August 8 mos.	929	13,312,899	1,329,485	15,663,853	1,824,108	1,004,674	97,772	7,938,110	50.7	7,725,743	5,766,482	4,182,900
Tennessee Central .....August 8 mos.	286	290,064	43,165	352,506	87,798	56,297	6,873	279,092	79.2	73,414	37,925	33,378
Texas & Pacific .....August 8 mos.	286	2,553,507	377,088	3,087,751	629,068	416,991	899,966	2,131,825	69.0	955,926	607,750	295,746
.....August 8 mos.	1,884	3,720,419	1,772,028	5,995,037	754,714	938,268	106,778	3,472,584	57.9	2,522,453	892,452	794,646
.....August 8 mos.	1,893	28,542,586	13,369,992	45,806,972	5,759,949	6,935,119	810,670	26,261,089	57.3	19,545,883	6,761,690	6,145,482
Texas Mexican .....August 8 mos.	162	149,957	1,518	176,684	23,093	13,430	3,818	95,455	54.0	81,229	67,913	60,902
Toledo, Peoria & Western.....August 8 mos.	162	1,208,875	7,809	1,395,985	261,236	105,615	30,291	736,970	52.8	659,015	492,106	419,347
Union Pacific System .....August 8 mos.	9,812	31,781,106	8,423,111	43,236,391	6,130,967	6,722,341	10,397,343	25,404,629	58.8	17,831,762	4,411,799	3,086,223
Utah .....August 8 mos.	9,827	228,172,835	55,954,230	306,247,441	41,915,647	50,737,131	3,714,927	185,562,738	60.6	120,684,703	37,738,898	29,544,189
.....August 8 mos.	111	118,752	.....	118,782	9,806	41,446	421	88,586	74.6	30,196	22,430	18,816
.....August 8 mos.	111	930,731	.....	930,905	124,082	327,675	3,570	737,775	79.3	193,130	101,228	91,027
Virginia .....August 8 mos.	657	2,269,854	13,379	2,351,251	241,537	514,895	431,676	1,269,238	54.0	1,082,013	582,013	700,972
Wabash .....August 8 mos.	658	16,813,350	73,657	17,504,807	1,764,572	3,744,716	3,256,836	9,378,614	53.6	8,126,193	3,976,193	4,923,793
.....August 8 mos.	2,393	6,633,314	1,047,940	8,102,564	975,823	955,009	168,679	4,781,629	59.0	3,320,900	1,421,628	940,892
.....August 8 mos.	2,393	52,765,205	6,708,151	62,768,291	6,627,860	7,328,845	18,855,293	36,132,308	57.6	26,635,983	11,291,239	7,799,151
Ann Arbor .....August 8 mos.	294	494,302	19,323	540,101	58,398	81,802	202,920	372,153	68.9	167,948	58,336	52,815
Western Maryland .....August 8 mos.	294	3,785,586	80,218	3,978,333	381,648	655,150	1,542,314	2,804,222	70.5	1,174,111	613,330	569,659
.....August 8 mos.	840	2,965,301	42,837	3,086,483	408,409	561,438	712,976	1,796,292	58.2	1,290,191	703,191	725,252
.....August 8 mos.	843	22,487,286	243,956	23,452,046	2,903,360	3,427,013	5,836,982	14,214,041	60.6	9,238,005	5,281,005	5,383,699
Western Pacific .....August 8 mos.	1,195	4,559,071	537,655	5,257,723	526,727	447,315	1,166,063	2,345,513	44.6	2,912,210	1,737,287	1,598,357
Wheeling & Lake Erie .....August 8 mos.	1,195	26,911,590	3,308,873	31,337,308	2,975,592	3,481,774	8,447,311	16,434,638	52.4	14,902,670	9,185,984	7,982,032
.....August 8 mos.	507	2,179,422	6	2,311,838	240,203	405,778	629,626	1,364,773	59.0	947,065	231,851	371,858
.....August 8 mos.	507	17,307,578	31	17,997,367	1,882,405	3,053,947	4,912,731	10,563,910	58.7	7,433,457	1,418,050	2,554,627
.....August 8 mos.	507	17,307,578	31	17,997,367	1,882,405	3,053,947	4,912,731	10,563,910	58.7	7,433,457	1,418,050	2,554,627